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PAPER TRADE JOURNAL

VOL. 124, NO. 4 JANUARY 23, 1947

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Canada's Record Output Enhances Industry's Value
Newsprint Production Continues at Peak Capacity
Tinker Tells Publishers How Demand Grew
Savannah Proposes to Make Herty Lab a College
Reciprocity Hearings List Paper Industry's Views
Delahey Becomes Great Lakes Vice-President

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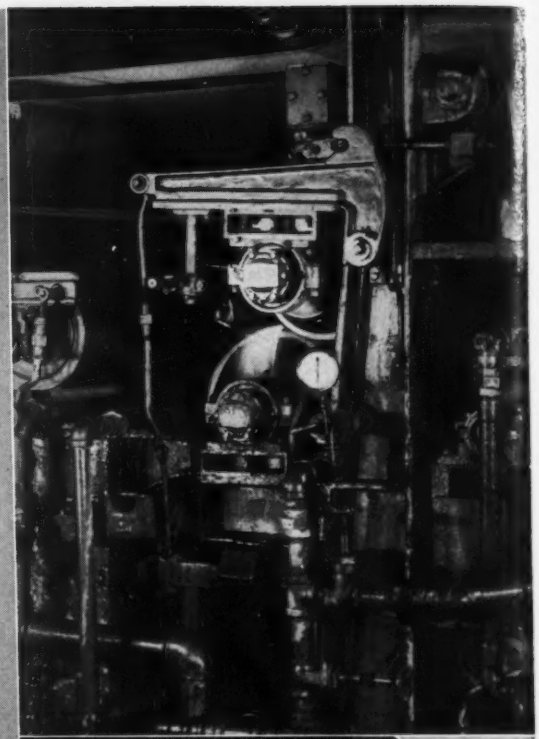

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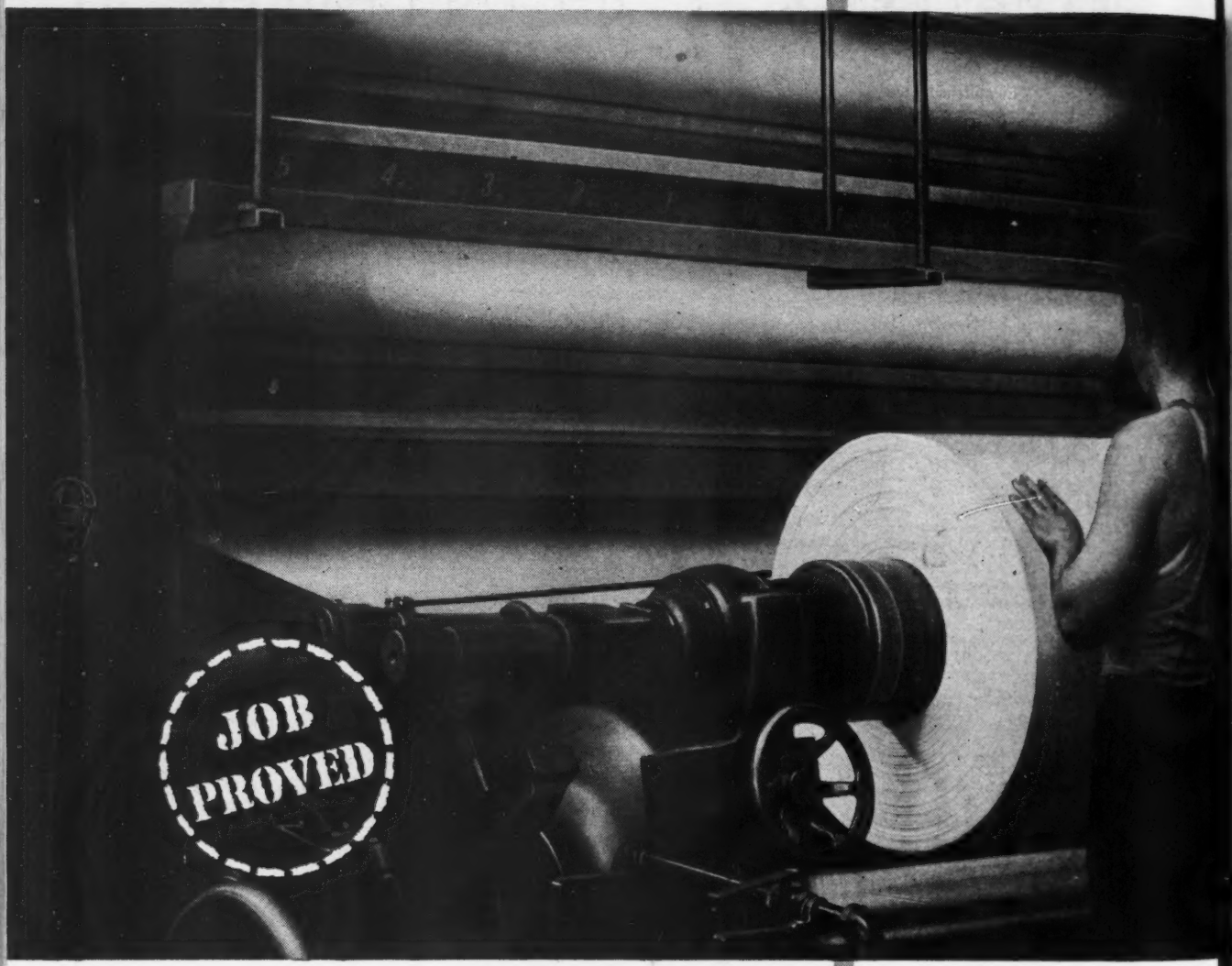

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PAPER TRADE JOURNAL

Vol. 124, No. 4 January 23, 1947

Title Reg. U. S. Pat. Off.

Canada's High Output Enchances Values

MONTREAL—Latest figures released by the Newsprint Association of Canada showing the total production of Canadian newsprint mills at 4,143,392 tons for 1946—an increase of 884,184 tons or 27.1 percent over 1945—justify the observation of R. M. Fowler, president Canadian Pulp and Paper Association and Newsprint Association of Canada, in reviewing the year's operations, that the mills have more than doubled the pre-war value of the trade they have created for Canada. He added that, because of the magnitude of the industry, this development has "benefitted every business in the land."

The full twelve months newsprint production of 1946 was at an average of 96.8 percent of mill capacity, which compares with an average ratio for the preceding year of 75.8 percent, while shipments for the year averaged 96.7 percent of capacity, which compared with 75.2 percent for 1945. Shipments to the United States amounted to 3,354,644 tons, showing an expansion of 810,528 tons over the 1945 aggregate. Overseas exports at 534,257 tons were up 43,203 tons from the preceding year, and domestic shipments of 247,077 tons showed an increase of 46,828 tons. (It has been estimated that pulp production was some one and a half million tons, with about one million tons of paperboard, fine and wrapping papers).

Not only was 1946 one of the most notable in the history of Canadian newsprint production, but other branches of the industry—pulp, fine paper, paperboard and wrapping paper—attained new, all-time production levels. Mr. Fowler has presented an estimate above the $475,000,000 figure as the gross value of output for all branches—making the industry "the largest individual contributor to the national income." Thus, with the recession of wartime munitions production, pulp and paper has strengthened its traditional position as the country's premier manufacturer — first in employment, first in total wages paid, first in investment, first in the gross and net value of production and the largest producer of export dollars. And the mills, despite ever-increasing production were not able to meet the demand abroad, while in the domestic market the demand was also at an all-time high record level. This refers

(Continued on page 32)

Tinker Tells Publishers How Pulp Paper Demand Grew

NEW YORK—In a friendly, factful talk before the National Publishers Association last week E. W. Tinker, secretary of the American Paper and Pulp Association laid out the record of the nation's pulp and paper mills since the war. He showed how production had been stepped up, how this continent leads overwhelmingly in its use of paper per capita, how practically all of its production is going to domestic uses.

I was appreciative of the opportunity to discuss the outlook for paper with you because I believe strongly in the need for mutual understanding of the problems and conditions that affect the outlook. To illustrate, if the publishing industry will need two million tons more of paper in 1950 than it used in 1946, then the paper industry should be prepared to produce it. I know that if the paper manufacturing industry has convincing evidence of the publishing industry's requirements for paper, then that paper will be produced. Beyond the question of paper requirements, I naturally am glad to meet with the National Publishers Association because I believe the paper industry and the public owe the association a deep debt of gratitude for the fine cooperation the publishing industry effectuated during the war period in assisting the industry to solve its vital problems of wood requirements. In my judgment this represented a major public service, not only to the paper consuming industries but to the nation's war effort. Without it, shortages of paper would have been felt to a point that acute military necessities would have been affected.

I think the 1946 record of the paper industry speaks for itself. During that year U. S. paper and board production reached an all-time high of 19,200,000 tons. Including imports, there was available to the consuming industries a total of 22,381,000 tons, or 2,700,000 tons over the available supply in 1945 and 7,800,000 tons over the average for the period 1935-39. With respect to printing papers, exclusive of newsprint, the average domestic production during the period 1935 to 1939 was 1,832,000 tons. The production for 1946 was 2,687,000 tons, or an increase of 46.7 percent.

With respect to 1947, I feel safe in

(Continued on page 22)

Robertson Entertains Champion Old Timers

CANTON, N. C.—Reuben B. Robertson, president of the Champion Paper & Fibre Company, delivered the principal address in Champion Y.M.C.A. on January 11 as he entertained members of the Champion Old Timers Club with their thirteenth annual banquet and musical entertainment. H. A. Helder, plant manager of the Canton division, gave the address of welcome, while Andy McClure, of Champion's R. and A. department and retiring president of the club, responded.

Reuben B. Robertson, Jr., executive vice-president, and Dwight J. Thomson, vice-president of the Champion Paper & Fibre Company, also spoke during the program. Both came here from general offices at Hamilton, O., to attend the event.

Nineteen employes became eligible for the Champion Old Timers Club and ran the total membership to 308.

ROSS W. FISHBURN

of the Whiting-Patterson Company, Philadelphia, who was elected president of the Paper Trade Association of Philadelphia, at its meeting January 8, 1947.

Prince Rupert Mill Story Is Revived

VANCOUVER, B. C.—Rumors, which have been circulating for many years regarding the establishment of a new pulp and paper mill in the Prince Rupert territory are again brought to the fore by an article in the Omineca Herald, in which the newspaper states "It is reported on very good authority" that the often-proposed sawmill is to be located at Port Edward, on property developed by the United States Army, near Prince Rupert.

The Port Edward area has a modern dock and complete shipping facilities, which were erected for army use in connection with the war on the Pacific. According to the Herald, the plan now scheduled for Port Edward is the one which was originally planned for location at the Skeena River, near Terrace. It is stated that a number of officials of the interested company recently visited Prince Rupert, and decided on the Port Edward site.

This is one of three different pulp and paper mills which are reported to be scheduled for establishment in northern British Columbia. No details are available yet as to where the new pulp and paper mill is to draw its hydro-electric power. There is little power at present available in the coastal section of northern British Columbia, but there are very considerable potential power resources in the northern and central interior of the province, which could be harnessed for use by the new pulp mill.

According to the Herald, pulp wood for the new mill will be secured from logging concerns, and pulp wood would also be purchased from farmers in the district. Rivers, railway facilities and trucks will all be utilized in bringing pulp wood to the new mill.

Appleton Will Add Two to Board

APPLETON, Wis. — Kenneth K. DuVall, president of the First National Bank of Appleton, and Russell E. Hanson, secretary and treasurer of the Giddings & Lewis Machine Tool Company, Fond du Lac, Wis., have been elected to the board of directors of the Appleton Wire Works, Inc. Reelected to the board were R. H. Purdy, W. E. Buchanan, Bruce Purdy and James Buchanan.

W. E. Buchanan was reelected president, treasurer and general manager; R. H. Purdy, vice-president and secretary; W. H. Jahnke, assistant secretary; J. Forest Johnson, assistant treasurer. Two new vice-presidencies were created, with George J. Maye of Appleton and Smith McLandress of Glens Falls, N. Y., elected to these positions.

Reports to the directors said that production, employment and payrolls in 1946 reached an all-time high for the company, which was organized in 1895. Based upon estimates of paper and paperboard production in 1947, company officers have expressed the belief that this year's production will exceed that of last year.

Considerable new equipment has been added during the last year.

Oregon Pulp & Paper Buys Provo Site

SALEM, Ore.—The Oregon Pulp & Paper company, operator of the Salem paper mill, has acquired a 40-acre factory site in Provo, Utah, where the ground has been purchased from the city for $16,800. A $3000 first installment has been paid on the property.

In Provo it was said the firm plans construction on the site with an initial expenditure of $100,000. The product to be made in the plant has not been made known, but there is considerable timber in the nearby hills that is suitable for making paper pulp or for lumber.

The Geneva steel mill, largest in the west, is seven miles north of Provo. The paper company's plant site is near the Ironton steel mill, also operated by the Geneva Steel company, a U. S. Steel corporation subsidiary.

The Oregon Pulp & Paper company has a successful papermaking industry at Las Vegas, Nevada.

Reams Joins Southern Advance

BOSTON—Claude E. Reams, formerly with Union Bag & Paper Corporation, has joined the sales staff of Southern Advance Bag & Paper Co., Inc., as district sales manager in the territory comprised of Tennessee and Northern Alabama. He succeeds D. W. Cantrell, who recently resigned. For the time being, Mr. Reams will maintain headquarters at Southern Pines, N. C.

Progress Reported On B-S-W Pulp Mill

PORT ALBERNI, B. C.—Steady progress is being made on the construction of the new pulp mill for Bloedel, Stewart & Welch Ltd. Approximately 500 men are engaged in the construction project.

Seven large chip storage bins have been practically completed on the north-south line adjacent to the plant. Construction of the conveyor system to transport the chips from the sawmill is also practically completed, and work has been finished on the erection of the large warehouse to the south of the development. The modern office building at the new plant has also been completed.

A machine shop has been erected, and considerable of the machinery has already been installed. Much of the washing and screening equipment for the pulp mill has already been delivered at Port Alberni and will be installed as soon as the buildings are ready.

Assembly of the overhead crane for the drier room is at present under way, and when this is completed, it will be utilized in placing other heavy drying equipment in position.

The new plant is expected to commence production early this summer.

Stevens Point Gets Mead Gift

STEVENS POINT, Wis. — A gift of $1,200 has been made by George W. Mead, president of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., to the Stevens Point Park board. The money is to be used for park purposes. He recently gave the city land along the Wisconsin river for the development of a park.

LOCKPORT FELT SALESMEN MEET AT MILL

Sales representatives of the Lockport Felt Company and members of the home office staff pose for a picture following dinner held at Hotel Statler, Buffalo, N. Y., which concluded their annual Fall meeting at the home office. During the two-day session, they were taken on a personally conducted tour of the mill by President William H. Lee, who pointed out the many new manufacturing features already in operation since the previous meeting and outlined further modernization plans. In the picture, seated, left to right: W. W. Campbell, Jr., L. W. Hanke, H. J. Smith, William H. Lee, B. A. Audley, L. D. Carner, H. F. Brown, R. J. Lee; standing, T. M. Gillespie, E. J. Johnstone, A. B. Julin, F. W. Drake, C. J. Price, A. J. Smith, Roy T. Yates, G. W. Hardaker, H. W. Merrill, A. C. Dunham, C. F. Wellington.

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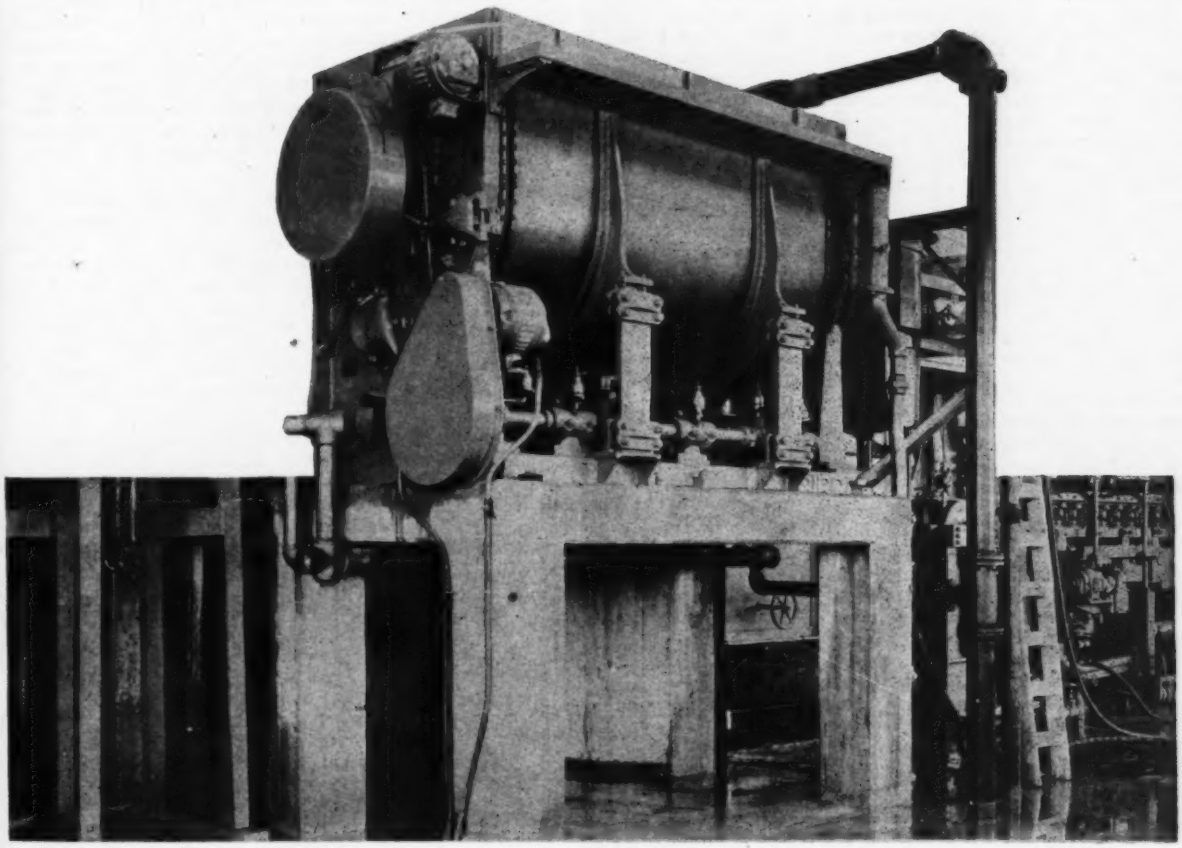

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Midwest Trade Faces Insistent Demand

CHICAGO—The paper trade, having looked back at the first two weeks in 1947 is seemingly unanimous in the belief that it as yet differs little from 1946. Demand is frantic from all sides and for all grades of paper. Substitute lines which seemed to be losing popularity as production of the old lines started upward are reported again to be scarce as a most eloquent tribute to the many uses now made of paper.

Local paper trade commentators said that this greatly increased usage of paper was an even more bullish factor than the shortage of pulp as a reason for the current tightness of the market. Some felt that by Spring the Scandinavian markets again would be supplying pulp in quantity to the United States but the Chicago contingent, at least, believes that this may not help much.

Nor is the trade here reported to be counting too strongly on the new construction and remodeling and expanding which headlines the news each week. Paper experts point out the fact that to remodel and expand an old mill often means some crippling of production while the change is being made, and all agree that the building of a new mill takes far more time than the "we'll have pulp immediately" brigade cares to admit.

Meanwhile, prices continued to be firm with sporadic price boosts above the comparative norm. Trade reporters indicated that such antics are always expected in prosperous times and looked to the market to continue firm, without any prospects of sharp drops in the offing. Waste paper receipts locally were said to be about sufficient to meet demand. Prices were firm, latest reports showing mills paying $20 a ton for No. 1 mixed, $35 for No. 1 news, and $36 for No. 1 Corrugated.

Local 51 Again Instals Rolan as Its Head

NIAGARA FALLS, N. Y.—Ronald M. Rolan was installed as president of the Power City Local 51, International Brotherhood of Papermakers, AFL, for the sixth consecutive year, in ceremonies at Eagles Temple.

Other officers who assumed their duties were: Carl Landy, vice-president; Robert L. Retchless, recording secretary; Eric Lounsbury, financial secretary; Antonio La Doucer, treasurer; William Organ, journal correspondent; John Banas, Earl McAlee and Peter Mitchell, trustees; and Stanley Dargis and Cecil Gaeta, inside and outside guards, respectively.

Roland Martineau and Stanley Harmatys were designated to serve as president and secretary-treasurer of the Benefit Association of the local for 1947.

In addition to being installed as president again, Mr. Nolan was also elected delegate to the international convention of the union and to the organization meeting of the New York State Council. Mr. Landy was designated to serve as alternate.

Plans for the annual Papermakers Ball were approved by the membership. Mr. La Doucer is chairman of the committee.

Reciprocity Hearings List Paper Industry Views

WASHINGTON — Many paper manufacturing and related interests began presentation of testimony and other information before the State Department's Committee for Reciprocity Information Wednesday, January 22. Appearances listed so far for these industries include the American Pulp and Paper Association, Book Paper Manufacturers Association, Groundwood Paper Manufacturers Association, and numerous others. Also appearing will be representatives of labor organizations in the industry, and many paper products manufacturers' representatives. Already heard have been spokesmen for salt cake, chlorine, and other paper-making chemicals.

100 Per Cent Club to Meet at Blackstone

CHICAGO — Herman Seely, financial editor of the Chicago Daily News and widely in demand as a speaker on financial and economic matters, is to be the speaker at the annual meeting of the 100 Per Cent Club of Chicago Paper Company to be held January 25 at the Blackstone Hotel. Other speakers will be N. T. Beardsley, sales manager of the Crossett Paper Mills and A. I. Cahill, sales manager of the Chillicothe Paper Company. Staff members of the Chicago Paper Company will also participate in the meeting while W. N. Gillett, president, will deliver his message to the club by proxy or in person while vacationing in Florida. Entertainment features are to be provided for to round out the day.

Delahey Joins Great Lakes As Executive Vice-President

TORONTO—Great Lakes Paper Company, Limited, announces appointment of Wallace A. Delahey as its executive vice-president. He resigned recently as manager of Ontario Forest Industries Association.

Graduate of the University of Toronto in forestry and a veteran of the First Great War, he served as assistant timber controller during the early years of the Second Great War. He entered the service of the Ontario Lands and Forests Department in 1920. He served from 1926 to 1929 as forest engineer with the Canadian International Paper Company and from 1929 to 1939 as woods manager of International Paper Company's Gatineau division.

Newsprint Continues At Peak Capacity

TORONTO — The Canadian newsprint industry during November 1946 continued its record-breaking pace in production and shipments. The month's production of 101.2 percent of capacity established an all-time high comparing with the previous output record of 100.7 percent of capacity reached in October.

In the case of shipments from the mills, November's total of 391,388 tons represented 108.7 percent of installed capacity and the highest shipments made from mills for any month in the history of the industry. Last month's shipments were 31.3 percent greater than the year ago total and exceeded November, 1939, shipments by 36 percent.

Production of 3,801,441 tons for 11 months of 1946 showed an increase of 1,172,831 tons over the 1939 total of 2,628,610 tons, the November production alone this year being up 75,578 tons. For shipments, the November figure of 391,388 tons was up 103,519 tons from November, 1939, and the increase for 11 months' shipments of 3,795,853 tons amounted to almost $1,200,000 tons.

Out of total Canadian shipments for 11 months, those sent to the United States amounted to 3,071,860 tons, up 737,404 tons from the 1945 figure of 2,334,456 tons, and representing 80 percent of entire Canadian shipments. In contrast with this sharp increase in the movement to the United States, shipments by U. S. mills to their own customers in the U. S. were actually slightly down in November, 1945, from one year ago, being 62,107 tons, as against 62,186 tons. For the 11 months shipments of U. S. mills were 699,186 tons, up only some 37,000 tons, or 5.6 percent, from the same period in 1945 of 662,914 tons. Production in the United States rose from 662,885 tons to 708,802 tons for 11 months, or 6.9 percent.

The past two months or so have seen the first shipments of newsprint from Scandinavian countries, as these had soon been cut off as the war went on, from a peak of 310,000 tons in 1939. By 1942, only 1,527 tons entered the United States with none from 1943 to 1945, inclusive, and the only shipments reported so far in 1946 was 506 tons in September, and 495 in October.

Medlock Joins Stearns

MILWAUKEE — Gordon E. Medlock has been appointed assistant manager of sales and repairs for the Stearns Magnetic brake division. A native of Atchinson, Kansas, Medlock was graduated from Northwestern University in business administration and has been employed in the Stearns brake factory for the past year.

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Pulp Mill Workers Meet Paper Makers

FORT EDWARD, N. Y.—The executive board of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers held its annual meeting here during the past week during which considerable business was transacted. At the opening session there was a lively discussion concerning the place for holding the next International convention in September and a secret ballot showed eight members voting for Milwaukee and three for Portland. At the afternoon session it was decided to request all Canadian and Newfoundland concerns during negotiations in the spring to establish the forty-hour week in line with the weekly hours that prevail in this country. The Newfoundland and Canadian mills are now working forty-eight hours with the exception of those in British Columbia, which are on the forty-four-hour weekly schedule.

President John F. Burke reported that the membership of the organization has reached the all-time high mark of 105,000 members. The report of Treasurer Frank Barnes disclosed that the organization is in a strong financial position with more than two million dollars in bank deposits and bonds. During the year the Brotherhood purchased one million dollars worth of war bonds. Plans were made to push a vigorous organization drive this spring and summer among the remaining unorganized mills in this country and Canada.

The executive board will recommend to the convention of the International Brotherhood to be held in September a plan for retirement pensions for the officers and field representatives of the organization based upon length of service. This plan proposes to grant a pension of $100 a month upon retirement to officers who have seen twenty-five years or more of service. This action is in line with the policy of the organization in negotiating pension plans with pulp and paper concerns.

Donations to buy food packages for free trade unions in Europe, extension of labor services for workers' education in this country and support of the Federal Forest Service were voted favorably during the concluding session. A donation of $200 was given to a committee for the extension of labor service in support of a bill before Congress to add to the Department of Labor a governmental service for the education of workers. The board also voted a donation of $100 to buy food packages to be sent to free trade unions in Europe.

After the meeting here the board went to Albany for a joint meeting with the executive board of the International Brotherhood of Papermakers. Merger of the latter organization with the International Brotherhood of Pulp, Sulphite and Paper Mill Workers was again proposed at that meeting by Matthew J. Burns, president, but action on the proposal was delayed. Mr. Burns said he was authorized to submit this proposal at the last convention held at Columbus, Ohio. John P. Burke, president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, stated that he could not agree to any plan of amalgamation of the two unions unless authorized by a convention of the organization he represents. The next convention of the latter organization is scheduled to be held at Milwaukee, Wis., in September. Mr. Burke assured the executive boards that the proposal for consolidation will be placed before the delegates of that convention but refused to make a prediction relative to a vote on the proposal. The International Brotherhood of Papermakers has 54,000 members while the International Brotherhood of Pulp, Sulphite and Paper Mill Workers has 105,000 members.

Alliance Paper Has Pension Plan

TORONTO—The latest addition to the list of benefits made available to employees of Alliance Paper Mills Ltd. is a pension plan with a guarantee of a minimum of 60 monthly payments, recently announced by A. E. H. Frair, president, and to be effective as of December 31, 1946.

The new pension plan provides for joint contribution by the member and the company to ensure an annuity based on 1½ percent of the member's earnings for each year of service from the time of joining the plan until retirement.

In recognition of the faithful service already rendered by the older long-service employees, the plan provides for the granting of a pension for past service for each member with more than five years of continuous service at effective date, and who joins the plan within six months of the effective date; the full cost of this part of the pension, applicable to past service, is borne by the company.

Alderman Christensen Gets Award for Service

NEENAH, Wis. — Edward Christensen of Marathon Corporation, Fourth ward alderman in Menasha for two terms, was presented Tuesday evening, January 14, with the Junior Chamber of Commerce distinguished service award. The presentation was made by Leo Croy, vice-president of Marathon Corporation and chairman of the citizens' selection committee, at a dinner meeting of the Jaycees of Neenah and Menasha at the Valley Inn. As president of the International Brotherhood of Sulphite Papermakers local, he was general chairman of the convention of Pulp and Sulphite Papermakers in Menasha last December 7 and 8.

Ancram Posts Notice Closing Its Mill

ANCRAM, N. Y. — A suspension of operations permanently loomed during the past week at the Ancram Paper Mills, Columbia county, following posting of a notice that the firm had decided not to resume. Labor organizers and company officials were at variance, however, in interpretation of the notice. An official of the company stated that as far as he knew the decision was to close the plant permanently. Orders to post the notice came from the New York offices of the concern.

An official of the International Brotherhood of Papermakers interpreted it to mean that no further attempts would be made to operate the plant while the trouble is in progress. A group of employes reported at the plant several days ago in response from telegrams sent by the firm that the mill would reopen for all who wished to return. However, they did not cross the picket line.

The management declared later that the union shop issue had stalled the negotiations and indicated that the difference is insurmountable. It was stated that the company has no objections to persons joining the unions but is against the principle of forcing anybody to join.

Labor leaders reported that the last wage increase offer was two cents an hour with provision for an open shop but this was rejected by the union. The organization seeks an increase of ten cents an hour. Another effort to settle the difficulty is scheduled for the latter part of this week when John A. Rooney, federal labor conciliator, will meet with company officials and representatives of the International Brotherhood of Papermakers.

Appleton Credit Unions Elect Their Officers

APPLETON, Wis. — Various paper company employes' credit unions have held their annual meetings and elected officers. Among them were:

Neenah Paper Company Credit Union, Neenah, with Donald Severson, Earl Graverson and George Seitz elected directors for three-year terms. Mr. Seitz is president and Harvey Larson is credit committeeman.

Badger Credit Union, Badger Paper Mills, Inc., with Paul Carter as president.

Wallpaper Union Elects Zappe

APPLETON, Wis.—Jerome Zappe was reelected president of the Independent Wallpaper Workers' Union of the Fox River Valley at a meeting January 11 at Moose hall. Other officers are Oliver Tracy, vice-president; Leslie Gebheim and David Mullen, re-elected secretary and treasurer, respectively, and Robert Greene, sergeant-at-arms.

By helping to keep water *outside*, Hercules sizing materials are a major factor in stronger, safer packaging. Used in manufacturing paper and board for bags, boxes, fiber containers, these materials protect the package and its contents in shipment and storage. They also preserve the shape and appearance of the container.

For improved internal or surface sizing, Hercules provides rosin sizes in paste or dry form, plasticized dry rosin sizes, and wax resin emulsions (Paracols*). One or more of these, together with Hercules technical service, can assist you in meeting today's rigid sizing requirements at minimum cost. Write for details.

HERCULES

HERCULES POWDER COMPANY

962 King Street, Wilmington 99, Delaware

*Reg. U. S. Pat. Off. by Hercules Powder Company P7-1

National Folding Box Elects New Officers

NEW YORK — Concurrent with its change from a New Jersey to a Connecticut corporation, effective January 1st, the National Folding Box Company, Incorporated, has elected the following officers, all of whom have been associated with the company for periods ranging from twenty-two to forty-five years. George W. Mabee, formerly president and treasurer, is now Chairman of the Board. Walton D. Lynch, formerly vice-president in charge of sales, is now president. Frederick S. Symington, formerly vice-president and plant manager, is now executive vice-president and general manager. David W. Mabee continues as secretary; and Fred G. Sims, formerly assistant treasurer is treasurer.

At the January 8th meeting of the board of directors the following additional officers were elected: W. C. Palmer, vice-president in charge of sales; J. C. LaGrua, vice-president; Donald H. Nugent, assistant secretary; and F. E. Endriss, assistant treasurer.

The recently-elected president, Walton D. Lynch is widely known throughout the packaging industry, having served as president of the Folding Paper Box Association of America and as president of the Packaging Institute. He has also addressed the A.M.A. packaging conferences and many other business groups.

Established in the Spring of 1891, as a New Jersey corporation, under the leadership of David S. Walton, who for many years had been identified with the paper industry in New York, the company has fully justified the faith which its founder envisioned for the future usefulness of folding paper boxes. Classed as one of the largest manufacturers, and frequently referred to as the leader in its field, National is a completely integrated plant, operating its own board mills and converting its large tonnage into printed and lithographed packages for many of the best-known and widely-advertised consumer products.

The business is in excellent condition, both as regards personnel and equipment, is well financed, gives regular, gainful employment to over 1,000 employees, and under its seasoned management looks forward with confidence to the years ahead.

Great Lakes Paper Operating At Effective Capacity

TORONTO—In the closing months of 1946, Great Lakes Paper Co. Ltd., was operating at effective capacity and despite substantial increases in costs the results for the year are proving to be satisfactory, according to Hon. Earl Rowe, president.

The outlook for 1947 indicates that, for the early months at least, there will be a continuance of capacity operations in newsprint. Under these conditions the company, along with others, is taking whatever steps are possible to put itself in a thoroughly sound position. Prominent in such a policy is the redemption of debt and other charges, the modernization and increased efficiency of plant, and the building of an adequate working capital.

Union Bag to Pay Dividend

NEW YORK—Directors of Union Bag & Paper Corporation this week declared a regular quarterly dividend of 50 cents per share on the capital stock of the company, payable March 17, 1947, to stockholders of record March 10, 1947.

Celotex Income Up On Higher Sales

NEW YORK—Net income of Celotex Corporation for the fiscal year ended Oct. 31, 1946 totaled $3,824,324 after income tax provisions and charges compared with $605,525 for 1945, according to Bror Dahlberg, president. This equals, after preferred stock dividend requirement, $4.17 a share on the 855,472 shares of common stock outstanding, compared with 57 cents a share on 755,472 shares outstanding at the end of the preceding fiscal year.

During the year, the regular $1 a share dividend, totaling $256,862, was paid on the 5 percent cumulative preferred stock, and dividends of $1 a share, totaling $830,513, were paid on the common stock. Stockholders, the report discloses, numbered about 12,300 at the close of the 1946 fiscal year, compared with 10,500 on Oct. 31, 1945.

Net sales, Mr. Dahlberg reported, totaled $33,090,464, compared with $22,185,651 for the preceding year.

"Substantial progress was made on general expansion plans," Mr. Dahlberg said, "and it is expected that most of the work now actively in progress will be completed and successively brought into operation early in 1947.

"Demand for our products," he pointed out, "continues to exceed our production capacity. Celotex regards the future of its business with increasing optimism."

Rayonier Dealers Dividend

NEW YORK—Directors of Rayonier Incorporated have declared the regular quarterly dividend of 50 cents per share on the $2 dividend cumulative preferred stock, payable April 1, 1947 to stockholders of record March 14, 1947.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending January 18, 1947

STOCKS

	High	Low	Last
A. P. W.	5¼	5	5¼
Armstrong Cork Co.	52¾	49¾	50½
Celotex Corp.	29	26⅝	28⅝
Celotex Corp., pf.	20⅞	20⅜	20⅝
Certain-Teed Products Corp.	20	17⅞	20
Certain-Teed Products Corp. pf.	....	....	....
Champion Paper & Fibre Co.	24¼	23	24
Champion Paper & Fibre Co., pf.	109½	108⅞	108⅞
Congoleum Nairn Co.	27¼	25½	27¼
Container Corp. of America	43⅜	41½	43
Crown-Zellerbach Co.	31¾	28½	30¾
Crown-Zellerbach Co., pf.	106¼	105½	108
Dixie Cup Co.	31¾	30	31¾
Dixie Cup Co.—A	52½	52½	52½
Flintkote Co.	35⅝	31⅜	34⅝
Flintkote Co., pf.	106⅜	105¾	105¾
Robert Gair	6⅞	6½	6⅞
Robert Gair, pf.	....	....	....
International Paper Co.	49¾	46	49
International Paper Co., pf.	104	104	104
Johns-Manville Corp.	129⅛	125½	129
Johns-Manville Corp., pf.	119	119	119
Kimberly-Clark Corp.	24	22¼	23¾
Mac Andrews & Forbes	38	37½	38
Mac Andrews & Forbes, pf.	140	140	140
Marathon Corp.	26¼	25¼	25¾
Masonite Corp.	57	53½	57
Mead Corp.	19½	18	19½
Mead Corp., pf. 4¼	104	103½	103½
Mead Corp., pf. 2	48	47¼	48
National Container Corp.	35¾	32¾	35¾
Paraffine Companies, Inc.	71½	70	70
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	24¼	21	23½
Rayonier, Inc., pf.	36⅜	36	36⅛
Ruberoid Co.	55	52¾	52¾
Scott Paper Co.	46¾	45½	45½
Scott Paper Co., pf.	100	99	99
Sutherland Paper Co.	43½	43½	43
Union Bag & Paper Corp.	28⅝	25⅞	28
United Paperboard Co.	13	12	13
U. S. Gypsum Co.	91½	86¼	90¾
U. S. Gypsum Co., rt.	10⅜	8¾	10⅛
West Virginia Pulp & Paper Co.	40	38	39¼
West Virginia Pulp & Paper Co., pf.	112⅝	112⅝	112⅝

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 3½s '60	....	....	....
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	103¾	103¾	103¾
International Paper Co. 5s '47	....	....	....
Mead Corp. 3s '66	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending January 18, 1947

STOCKS

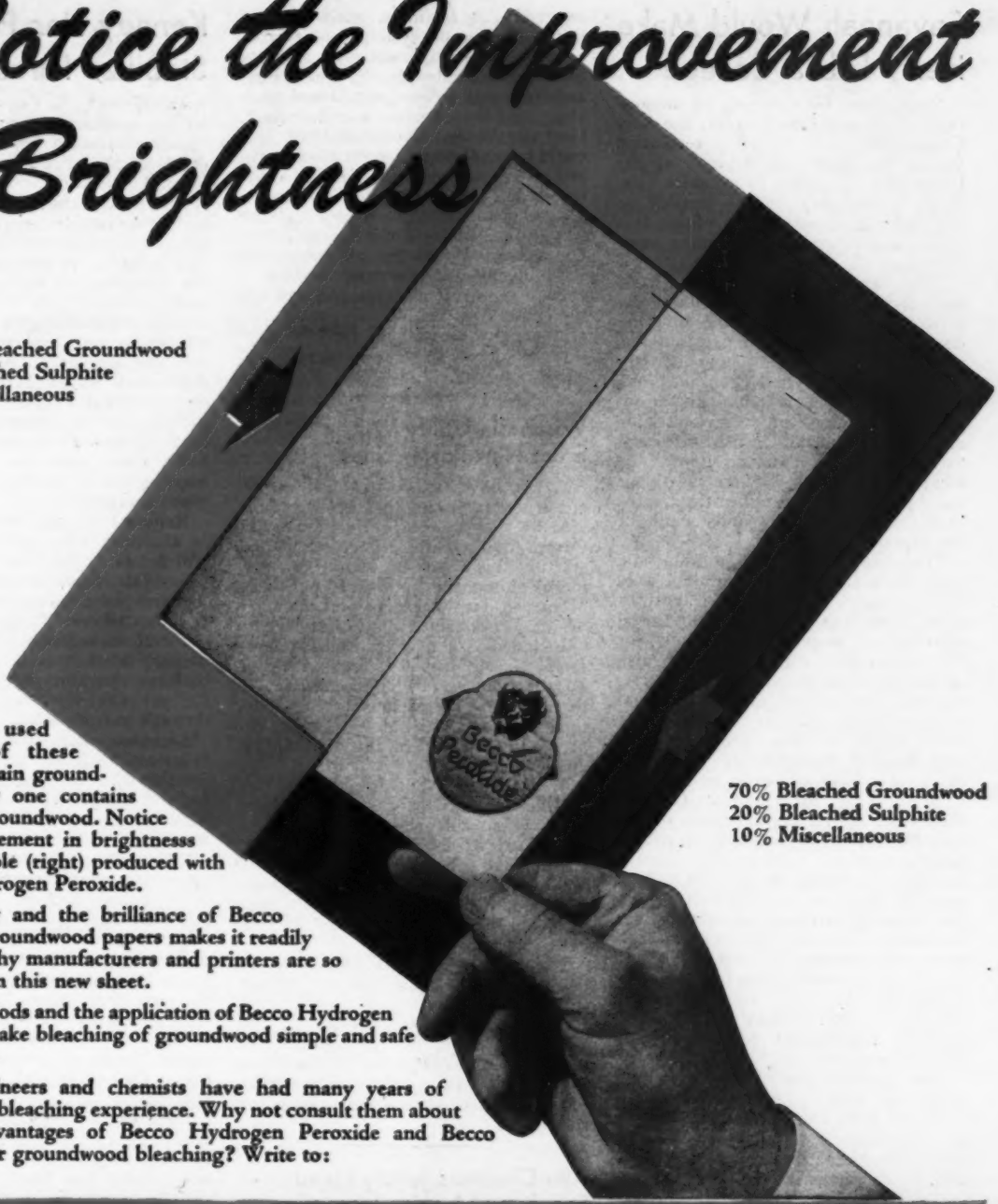
	High	Low	Last
Great Northern Paper Co.	43¾	41	41
Hummel Ross Ribre Corp.	27⅜	25	27⅜
St. Regis Paper Co.	9½	8¾	9⅛
Taggart Corp.	8½	8½	8½

BONDS

American Writing Paper Co. 6s '61	102	102	102

Notice the Improvement in Brightness

70% Unbleached Groundwood
20% Bleached Sulphite
10% Miscellaneous



70% Bleached Groundwood
20% Bleached Sulphite
10% Miscellaneous

The pulp used in both of these papers contain groundwood, only one contains bleached groundwood. Notice the improvement in brightnesss of the sample (right) produced with Becco Hydrogen Peroxide.

The clarity and the brilliance of Becco bleached groundwood papers makes it readily apparent why manufacturers and printers are so interested in this new sheet.

Becco methods and the application of Becco Hydrogen Peroxide make bleaching of groundwood simple and safe in the mill.

Becco engineers and chemists have had many years of specialized bleaching experience. Why not consult them about all the advantages of Becco Hydrogen Peroxide and Becco methods for groundwood bleaching? Write to:

BECCO SALES CORPORATION
AGENTS FOR BUFFALO ELECTRO-CHEMICAL COMPANY, INC.
18 Sawyer Avenue, Buffalo 7, N. Y.
New York Boston Philadelphia Chicago Charlotte

Savannah Would Make Herty Lab a College

SAVANNAH, Ga.—Acting on suggestion of Mayor Pete Nugent, the City Council here has passed a resolution urging the Board of Regents of the University System to acquire the Herty Laboratory and to provide at Herty Field a permanent college featuring courses in pulp and paper engineering.

"The latest figures on wood pulp manufacture in the United States describes more graphically than anything else the tremendous expansion and growth of the pulp and paper industry in the South," Mayor Nugent declared.

"In 1936—a short ten years ago—only five percent of the wood pulp manufactured in the United States was made below the Potomac River," he continued. "Today 70 percent of the wood pulp manufactured in the United States is produced by mills south of the Potomac.

"This expansion of the pulp and paper industry in the South not only means steady jobs at good wages for many thousands of people, substantial salaries and responsible positions for the technically trained, but it also spells increased incomes for the farmers and other forest land owners, and more revenue for the railroads and other public carriers, and additional business for hundreds of firms and concerns selling materials or services.

"It is only natural that Georgia should attract certain segments of the nation's rapidly expanding pulp and paper industry. Here in the Empire State of the South, we have 24 million acres of land—more than half of the State's landed area—producing and reproducing trees—our greatest natural, renewable resource. Today this giant tree farm produces forest products valued by the State Department of Forestry at $225 million annually, and provides employment for more than 120,000 people.

"The manufacture of paper is comparatively new to the South. Those Southern mills that have pioneered in the development of higher quality papers, whether it be kraft or so-called slick finish papers, have had to call on the skills and techniques of trained chemists, technicians, paper makers and others skilled in the know-how of the sulphate and sulphite processes from the Middle West, New England, Canada, and other States and countries which once monopolized paper production.

"For more than a decade now Georgia's fertile areas have been furnishing the raw material for our pulp and paper mills. Why should we not immediately establish an institution of learning which will enable us to furnish from among our Georgia youth properly trained personnel for the pulp and paper mills?

"Savannah, happily, owns the property on which the Hunter Field Branch of the University of Georgia is now located. All facilities, such as electrical distribution system, waterworks, sewerage system, roadways and the like, are already there. The Herty Laboratory is fully equipped and operating, and is located here in Savannah. One of the finest contributions that could be made to the youth of Georgia, and to the economy of our State, and to greater industrial development, would be to move the Herty Laboratory to the Hunter Field Branch of the University of Georgia, and with this as a nucleus, create and develop a college featuring courses and instructions that will enable the young man of tomorrow to take his rightful position in our rapidly developing pulp and paper industry."

Wisconsin Utility Will Erect New Power Lines

GREEN BAY, Wis. — A $14,600,000 construction project has been authorized by the Wisconsin Public Service Corporation for the three-year period starting this year and ending in 1949, it was announced January 15 by M. H. Montrose, vice-president and manager of the Wisconsin Valley division.

Included is a new transmission line from Green Bay to Wausau, Wis. Existing lines will be reconstructed, there will be extensions to new customers, and additional sub-station capacity and equipment for maintaining good voltage.

When the new line from Green Bay to Wausau has been completed, the corporation will be able to carry a total load of 247,000 volts from its Green Bay plant to the Wisconsin Valley division in times when steam-generated electricity is needed to supplement hydroelectric power in the valley system.

Paper mills in the Wisconsin valley depend largely upon the utility for supplementary power.

During high water periods on the Wisconsin river, the corporation will be able to transmit power to the Green Bay division as a means of conserving coal used in the generation of electricity.

Allis-Chalmers Safety Head Speaks on Machine Inspection

MENASHA, Wis.—More than 75 foremen and supervisors attended the fourth monthly meeting of the Twin City Safety Council at Germania hall last week. M. F. Biancardi, head of the health and safety departments of the Allis-Chalmers Manufacturing Company, West Allis, Wis., spoke on "Machine Inspection."

The three causes of machine accidents, he said, were human failure, machine failure and machine construction. Of special interest to the foremen present were various suggestions for regular plant inspections, proper guarding of machines to conform with state safety codes and the use of streamline forms and check lists.

Kenney Has Plan to Stabilize Forestry

VANCOUVER, B. C. — Legislation intended to guarantee sustained yield of timber on crown lands will be introduced at the next session of the provincial legislature. British Columbia's revolutionary change in forest policy was announced recently by Hon. E. T. Kenney, minister of land and forests, at a meeting of Vancouver section of the Canadian Society of Forest Engineers.

"We are standing at the cross-roads as far as our timber is concerned," said the minister. "The government is determined to put forest management on a rational long-term basis."

"We owe an obligation to posterity that they too will find some timber here to use. The new legislation, we hope, will stabilize the industry for all time to come."

Removal of the competitive system in allocation of crown timber licenses will be the keystone of the new legislation, Mr. Kenney announced.

In its place crown timber lands will be allocated directly to operators under a forest management license. Holders of such licenses, who will of necessity be large operators, will be responsible for maintaining a sustained yield, through reforestation.

Licensees thus will not only cut mature growth, but will be responsible jointly with the forestry department for upkeep of new growth on crown-licensed lands, and for planting of new trees on barren lands.

"We will have a much healthier condition if private interests are allowed to hold and manage forest lands in large acreage," said the minister.

Although crown grant lands, amounting to 11 percent of the forest lands in the province, will not be affected by the new legislation, Mr. Kenney declared he believed it would be to the interest of holders of crown grant timber lands to cooperate with the government in the reforestation scheme.

Long-range objective of the new forest policy is to assure a rotative system, so that new annual growth will not be less than the annual cut.

"The present policy of liquidation of our timber resources points to early disaster," said the minister. "If the forest industry is to be stabilized, it must be developed by rational management to productive capacity."

Mr. Kenney first outlined forest legislation since crown colony days, showing where early estimates of the inexhaustibility of our forest resources have been proved at fault.

Keefe in Chicago

CHICAGO—Harry A. Keefe has been appointed district representative of the Logemann Brothers Company in this territory. Mr. Keefe is located at 122 So. Michigan Avenue, Peoples Gas Building.

Tells Publishers of Research Need

ROCHESTER, N. Y. — Dr. Walter Clark of Kodak Research Laboratories told members of the New York State Publishers Association this week that a great need exists for coordinated research in the field of graphic arts. In Rochester for their annual meeting, the publishers during their visit to Kodak Park laboratories heard Dr. Clark tell the group that a number of factors indicate it is "time for the graphic-arts industry to take stock of itself."

"Production is straining at the leash to increase, and apparently the only thing that prevents it at present is the capacity of the industry itself. In the field as a whole during the past twenty years, with the exception of the depression years, both photolithography and photoengraving have shown consistent growth," he said.

Pointing out that the photoengraving trend can now be expected to change, Dr. Clark said it is expected that lithography "will to an increasing extent partly replace photoengraving."

The Kodak scientist drew attention to the established trend in the publishing industry toward photography and especially toward color.

"News illustration is of course now done entirely from photographs, and advertising illustration in general magazines has shown a very strong trend toward photography, having shifted from about 25 percent photographic illustration in 1928 to about 70 percent in 1940," he said.

Stationers Expect Trade To Hold Good Level

The paper industry will be interested in the forecast of the office supply business recently made by Harry G. Horder, president of Horders, Incorporated, one of the largest office supply concerns in the industry. He expects commercial stationers to hold well to present levels or show increases even if a general adjustment sets in. He pointed out that paper items would continue to be in short supply but that there would be sufficient items in the general stationers line to make the forthcoming twelve months profitable. Mr. Horder also indicated that his industry, having had no outstanding boom years, would make a good account for itself "even if a serious recession sets in."

Three Firms Unite as American Paper Co.

MILWAUKEE — Three well known paper firms merged last week under the name of the American Paper Company. The three are the American Paper Company, the Blatz Paper Company and the Flint Paper Company. The personnel of the respective firms will, it is reported, be merged and continued without change. The American Paper Company was organized in 1924, while the Flint Paper Company, originally the old Dever Brothers Paper Company, came into existence over twenty-seven years ago. Blatz was initially known as the Frank G. Smith Company until it became the Blatz Paper Company in the early twenties. The new company will handle coarse paper lines, supplies and building, industrial and technical paper wrappings as well as a complete representation of food packaging papers.

Western Sapeyes to View Bears-Giants Film

The western division of the Salesmens Association of the Paper Industry reviewed the professional football championship game between the Chicago Bears and the New York Giants on Monday noon, January 20, at the Hotel Sherman. Movies were shown of the scoring plans of the game and the narrator was Luke Johnson of the Midland Paper Company, assistant coach and chief scout of the Bear organization. Luke was recently the subject of a feature story on scouting which appeared in the Saturday Evening Post. It is reported that nearly 100 SAPEYES and guests were on hand for this interesting event. Ed Edwards of the Howard Paper Company, vice-president of the division, was back again after a long sojourn on the coast and in other parts of the country.

Last week the western division took enough time off from its round table discussion to again award the attendance prize to H. C. Engel, Central Paper Company, who received merchandise certificates for his faithful attendance. He's about won the the third leg on the prize, having copped it during the past two or three years.

Along with the SAPEYE weekly report comes the news that one of its most faithful and well liked members, Ben Babbitt of the Brown Company, departed January 19 for St. Augustine, both to visit his mother and to enjoy the Florida climate. He's expected to be back in Chicago the fore part of February.

St. Regis Local Holds Annual Banquet

DEFERIET, N. Y. — Members of the St. Regis Local, No. 56, Papermakers' Union, held their annual banquet and get-together at Johnnie's Inn. There were 150 officers, members and guests at the dinner, one of the largest that has been held by the union.

Following the dinner, a program of talks by union officials and representatives of the St. Regis Paper Company was held. All of the speakers stressed what is being done for World War II veterans.

Company officials outlined their policy of serving the returning veterans. Clifford C. Wenzel, personnel manager of St. Regis Paper, represented the company at the affair.

Say Rafts Destroy Superior Fish Nets

MADISON, Wis. — The Wisconsin State Conservation Department may resort to legal action against what it considers pollution of Lake Superior fishing grounds by the deposits of bark from the rafting of Canadian logs across the water by Wisconsin paper companies. Commission members agreed informally at a recent meeting to take such action, assuming that an amicable settlement cannot be reached, and assuming that the attorney general's office supports the department's contention that it has statutory authority to act.

Complaints about fishing grounds pollution and damage to nets have come from commercial fishermen on the south shore of the lake, and are corroborated by Dr. E. W. Schneberger, head of the state fisheries section.

The problem has been discussed with the Consolidated Water Power and Paper Company, Wisconsin Rapids, which has rafted large quantities of pulpwood across the lake for many years, but Dr. Schneberger said the company's proposal to change the route "won't help a bit." Consolidated had volunteered to use a longer route, thereby avoiding the Apostle Islands fishing grounds.

The commission directed its attorneys to confer with the attorney general's staff on the legal aspects of the problem, indicating that it will proceed through the courts if the law on its power is clear and no other means of eliminating the bark pollution is found.

Wisconsin to Buy Plane For Forest Protection

MADISON, Wis.—The Wisconsin Conservation Commission at a meeting here January 14 approved the purchase of an airplane and an aerial camera for use by the forest protection division in spotting and fighting fires. Commission members decided the estimated cost of $7,000 would be justified in added protection in the event of an emergency.

Commissioner W. J. P. Aberg of Madison objected to the action because he said private planes are obtainable in an emergency.

Kimberly Foremen Will Attend Management Meeting

APPLETON, Wis.—Forty members of the Kimberly Foremen's club of the Kimberly, Wis., mill of Kimberly-Clark Corporation will attend the management institute to be sponsored by the Appleton Chamber of Commerce with the cooperation of the University of Wisconsin Extension division. The institute will be held January 23 and 30 and February 6 and 13.

Foresees Big Future For Transmania Paper

PERTH, West Australia—F. Barnes, chief paper-maker for the Associated Pulp & Paper Works, Burnie, Tasmania, who came from England nine years ago and who is at present en route to England to bring his wife and daughter to Australia, says that there is a big future for the paper pulp industry in the Commonwealth. "The paper manufactured at Burnie," he says, "is all fine grade material, but it is not quite as good as that manufactured overseas. But experts are now busy working out plans to improve it. The raw product comes from eucalyptus, and Australia is the only country that has so far succeeded in manufacturing paper from hardwoods, an achievement which followed over twenty years of experimentation. Tasmania is fortunate inasmuch as she has ample supplies of timber at present, although areas will have to be replanted as they are worked out. The State is also fortunate in having cheap electric power and plenty of water—the major factor in paper production. The effect of the establishment of our paper mills at Burnie is shown in the increase in the town's population from 5,000 to 11,000."

Following the recent announcement that Australian Paper Manufacturers, Ltd., were to erect a mill in Brisbane for the manufacture of cardboard (as already announced in these columns) the managing director of the company (Sir Herbert Gepp) recently visited that city where he interviewed the Premier (Mr. Hanlon), the Minister for Labour and Employment (Mr. Gair) and the Lord Mayor (Alderman Chandler). He also got in touch with various public bodies, stating that such overall inquiries were necessary owing to the large capital investment involved. "A consignment of several hundred tons of Queensland pulp wood of various kinds is now on its way by rail to the company's Botany mill, near Sydney," he said, "and this will be tested for suitability before any further move is made."

The Minister for Trade & Customs (Senator Courtice) states that although the production of cigarette papers has increased considerably since July last, it is yet not sufficient to cope with the demand. Demand has greatly increased owing to the greater quantities of tobacco now available, and the factory at Rutherford (New South Wales) which has trebled its production is making efforts to step this up even further.

NLRB Will Hear Gould Case

BUFFALO, N. Y. — The National Labor Relations Board has decided that a hearing will be held in Lowville in the near future on a complaint by District 50, United Mine Workers of America (AFL), against the Gould Paper Company, division of the Continental Can Co., Lyons Falls. The union alleges E. C. Jones was discharged July 15, 1946, because of union affiliations and activities, the NLRB said.

Wisconsin Safety Group Will Meet in Wausau

WAUSAU, Wis. — The sixteenth annual session of the Wisconsin River Valley Safety Conference will be held here early in June, it was reported last week, after a meeting of the arrangements committee at Hotel Wausau. New officers include Fred W. Braun, chief engineer of Employers Mutuals and president of the Wisconsin Council of Safety, chairman of arrangements; A. F. Baumann, Rothschild, of Marathon Corporation, vice chairman; H. A. Ladwig, Employers Mutuals, secretary; and C. H. Hansen, Wisconsin Public Service Corporation, treasurer.

The last previous conference in Wausau was held in 1939. These annual meetings attract about 500 representatives of the paper and other industries and municipalities. The conference will be held under the auspices of the Marathon County Council of Safety.

Two new sections have been added, one on transportation and traffic safety, and the other on foundry, machine shop and metal trades problems. One of the sections, as heretofore, will deal with safety questions of especial interest to paper and pulp groups. E. C. McCrary, Wausau, will be the section chairman. He is with Marathon Corporation. W. R. Cahill, Port Edwards, of the Nekoosa - Edwards Paper Company, is co-chairman. This section generally attracts the largest attendance at the conferences.

Thompson Joins American Industrial

BUFFALO, N. Y. — F. B. Oldham, president of the American Industrial Company of New York and Buffalo, with executive offices in the Oxford Building, has named A. J. Thompson chief engineer of the company to be located at the main office in Buffalo. Mr. Thompson comes to the firm with twenty-six years' experience in management and engineering; designing plants and equipment for the manufacture of paper.

Campins Group Organizes Polymer Industries

ASTORIA, N. Y. — Dr. Frank C. Campins is now associated with Dr. M. Konigsberg, Dr. H. L. Kane and John W. Ogletree as directors and officers of Polymer Industries, Inc., 11-08 30th Avenue. Polymer acts as manufacturers and consultants on sizings, gums, softeners, impregnants, and laminants for the textile and paper industries. All were formerly with National Adhesives.

Study Reforestry In British Columbia

VANCOUVER, B. C.—Nearly one-third of all British Columbia land suitable for producing merchantable timber, some 20 million acres, is now barren and is not reforesting itself. Recognizing the disastrous effect this will have on the future of Canada's greatest basic industry, the British Columbia Research Council, in collaboration with the University of British Columbia, began a survey in 1945 of the effects of various factors on reforestation. The work is being carried out in the university forest under the supervision of Professors A. H. Hutchinson and F. M. Knapp.

As the 1945 Sloan report of the Royal Commission on the Forest Resources of British Columbia states, "There is much to be learned concerning regeneration and the logging methods best suited to ensure it, rates of growth or yields on different sites, the effects of intensive silvicultural methods—and a host of other related and unrelated subjects."

The Research Council is determining the effect of conditions such as rainfall, light and shade, soil, and location of seed trees on the extent to which re-seeding occurs in logged areas, on the types of trees which form the second growth forests, and on the rate of growth. Until such basic information is known, scientific control of re-forestation is impossible. In close conjunction with this work, methods are being developed for accurately and efficiently surveying large areas to determine the extent and nature of reforestation.

Sprout-Waldron Manufactures Steel Plate Industrial Fans

MUNCY, Pa. — Sprout, Waldron & Company is now designing and manufacturing belt- and motor-driven steel plate fans for application in many phases of modern air-handling industries. Their welded, all-steel construction make these newly designed fan units particularly well adapted to the handling of materials by air — dusts, chemicals, ground feedstuffs, even, it is said, corn cobs.

Fan blades develop high static pressure because they are of the deep radial type. Open design allows material to by-pass the blades, reducing wear on the heavy gauge, all-welded steel impeller.

For applications where abrasive materials are handled and an ordinary fan housing would require frequent replacement, Sprout-Waldron furnishes a tough, abrasion resistant liner insert. Thus, costly replacements are eliminated and the life of the fan housing is prolonged many times.

Sprout-Waldron has just issued an attractive four - page bulletin which fully illustrates and describes its line.

A New Industry Comes to America

In the late 1860's, with newer, better, faster machines, and with plentiful wood pulp in prospect to feed them, the paper industry boomed. Still the essential papermakers' felts were largely imported from England. Pioneers set about to supply the urgent need—American-made felts for America's multiplying paper mills.

Among the first of the American felt-weaving mills was one now known as F. C. Huyck & Sons. Established in 1870 in the village of Rensselaerville, New York, it has grown to be the largest manufacturer of papermakers' felts in the world. It has cooperated closely with the papermakers, designing and producing felts to run at greater speeds, remove water in greater volume, provide new finishes for new types of paper. This is its continuing purpose: to meet the most exacting needs of the vital paper industry.

The dramatic story of paper is told in the sound-and-color film, "Paper— Pacemaker of Progress," and in a book under the same title. Both are presented by F. C. Huyck & Sons as a tribute to the Paper Industry. The book will be sent free upon request.

F. C. HUYCK & SONS · *Kenwood Mills* · ALBANY, NEW YORK

KENWOOD WOOL PRODUCTS

HUYCK *Felts*

Keuka Discontinues Its Plan to Rebuild

PENN YAN, N. Y. — H. H. Turner, former president of the Keuka Paper Corporation's plant on Keuka outlet, announced last week that it is now definitely decided that the company will not rebuild on its former factory site here.

There are two chief reasons for this, Mr. Turner explains, one is the inability to secure papermaking machinery and the other is the extremely high cost of replacing the building at the present time. Company officials felt obliged to move to a more advantageous location.

Consequently, with the New York interests already connected with the business here, a new company has been formed, called the Stockport Paper Corporation. Mr. Turner is president of this new organization and in charge of the 35-ton paperboard mill at Stockport. This plant is closer to the New York market and the water power facilities owned by the corporation provide cheaper power than was possible here.

Although working through the week at Stockport, Mr. Turner will maintain his home in Penn Yan. Both he and his wife like Penn Yan so much, he explains, that they hope not to have to move for a time.

Labor Board Holds Up Case Of Time Study Organization

HOLYOKE, Mass. — One local labor dispute is affected by the decision of the National Labor Relations Board to suspend proceedings in all cases involving bargaining rights for supervisory employes until the Supreme Court decides whether foremen are entitled to collective bargaining rights.

Time study men at the Worthington Pump plant in Holyoke, numbering about 18, got into a dispute with management last year over their rights to form an independent union, affiliated with other independent unions throughout the country whose membership comprised supervisory employes in plants. The independent was in no way connected with the AFL or CIO.

Worthington management contested the time study men's right to form the union on the grounds that they were a part of management in carrying out time study work. The time study men brought their case before the NLRB and no decision has been made as yet. This dispute will be suspended temporarily because of the NLRB decision until the Supreme Court rules.

Bagley & Sewell Contracts to Deliver Machines to Finns

WATERTOWN, N. Y.—Abe Cooper, president of the Bagley & Sewall Company, Inc., reports contracts for two 100 metric ton board machines for 1948 delivery to the Delegation of War Reparations Industry of Helsinki, Finland.

To conclude final details of the machines, Mr. Cooper has been requested by the Finnish government to meet representatives of both the Finnish and Russian governments in Stockholm, Sweden.

OBITUARY

Willard E. Swift

WORCESTER, Mass.—Willard E. Swift, 68, Chairman of the Board of the United States Envelope Company, in which he had been an employee, or officer, since 1903, died during the night of January 14, 1947, at his home.

Mr. Swift, a native of Worcester, was a son of one of the founders of the United States Envelope Company. His first job with the company was as a machine operator. He rose through the ranks and had occupied many different positions in the company, serving as president from 1929 to 1946 when he was named chairman of the board.

Mr. Swift was the son of the late Henry D and Emma Colburn Swift. After graduating from the Worcester Public Schools he matriculated at Haverford College, Haverford, Penna. Upon graduating in 1903 as a mechanical engineer, he went to work in the Logan, Swift & Brigham Division of the U. S. Envelope Company, where he learned the envelope business from the ground up, following in the steps of his father, and his uncle, D. Wheeler Swift, who were engineers for Logan, Swift and Brigham when that division was formed in 1884. Mr. Swift had to his credit the designing of much of the machinery used in the plants of the United States Envelope Company throughout the country.

He was a director of the Boston Mutual Fire Insurance Company, and a member of the executive committee of the Associated Industries of Massachusetts. He was also on the Board of the Worcester Manufacturers Mutual Insurance Company, and of Hahnemann Hospital.

Mr. Swift is survived by his widow, Alice (Metcalf) Swift; a daughter, Chrystella, wife of Webster K. Ramsey; and two sons, Arthur Henry Swift, all of Worcester, and W. Everett Swift of Foxboro, and six grandchildren.

Samuel William Moore

TORONTO—Samuel William Moore, 81, founder of S. W. Moore & Sons paper processors, died early January 5, at his home on Enderby Road. The late Mr. Moore was born in Cincinnati, Ohio, but came to Toronto as a child. After a number of years with the T. Eaton Co. he went into business for himself in 1930. The business was wiped out by fire a year ago. He is survived by four sons, Bob, Joe, Steve and Sam, and three daughters, Mrs. Violet Kipling, Mrs. Jenny Folkes and Mrs. Grace McGladery, all of Toronto.

Schulman Takes Presidency Of Louis Dejonge & Co.

NEW YORK — Louis Schulman has been elected president and general manager of Louis Dejonge & Company, hundred-year-old box paper manufacturers with headquarters in New York and mills in Staten Island. Mr. Schulman bought control of Dejonge several months ago, after having been a substantial stockholder for 12 years. Other new officers of the company are John J. Kelly, vice-president; John Blakle, secretary; Arthur I. Ingham, treasurer and Charles E. Baker, assistant secretary-treasurer. Dejonge does an annual business of approximately $3,000,000 and maintains branches in Chicago and Philadelphia. Its products are sold by distributors in New England, the South and Pacific coast.

Other Schulman enterprises in the paper industry include the Springfield Coated Paper Corporation (mill) in Camden, N. J., the Louis Schulman Company, Inc., New York and A. S. Datz & Son, Inc., Philadelphia. Mr. Schulman is president of all of these corporations.

A year end bonus, totalling approximately $50,000 was, this month, distributed to the employees of the four companies.

Booth Joins Dwight Brothers To Head Coarse Paper Sales

MILWAUKEE—Melvin P. Booth, associated with The Interstate Cordage and Paper Company, Pittsburgh, from 1934 until January 1, has joined Dwight Brothers Paper Company as general manager of the coarse paper department. Dwight Brothers is entering into this field in order that they may be of better service to the industrial trade in the territory of Milwaukee and the State of Wisconsin. Mr. Booth now is spending his time making mill connections and securing lines to establish this new department.

Pallister Named Engineer By Provincial Paper

PORT ARTHUR, Ontario — E. Lorne Goodall, general manager of the Provincial Paper, Limited, plant here, this week reported appointment of E. G. Pallister as divisional engineer of the company. Mr. Pallister will also take over part of the duties as resident engineer, a position formerly held by Mr. Goodall.

Formerly of Ottawa, Mr. Pallister has been with the company here since April. He served several years overseas in the Canadian army, retiring with the rank of lieutenant-colonel. He obtained his early paper mill experience with the J. R. Booth Company, Ltd., pioneer eastern lumbering and paper mill concern. He hit the beaches on D-Day with the repairs branch of the 2nd Canadian Armored Brigade.

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Pacific Mills Gives Service Pins to 34

VANCOUVER, B. C.—Thirty-four employees of Pacific Mills, Ltd., and its subsidiary, Canadian Boxes, Ltd., were presented with service pins by Paul E. Cooper, president of both companies, at a staff party at the Panorama Roof, Hotel Vancouver, Vancouver, B. C.

For 25 years' service, James Bird, employment manager, and John A. Young, vice-president and treasurer, received diamond pins. Mr. Young was unable to attend through illness, and Mrs. Young received the pins.

Twenty-year pins went to Leonard Bate, Parker S. Bonney, Charles H. Forster, Carman Mills, Lorang J. Molsted, George Oliver, Gordon R. Sharpe, Joseph Vesak, and Anne Woodburne.

Receiving 15-year pins were: Cyril Barker, Paolo Borsato, Alfred Grimshaw, Bruce Guthro, Thomas I. McMurphy and Walter Wilson.

A 10-year pin went to T. Harvey Whitson.

Five-year pins were presented to Joseph Bozich, George W. Brooks, Phyllis Caufield, Cyril Cross, John T. Elder, Jean Fulton, Arthur Gibson, James Hadden, Elizabeth James, Michael J. Lucas, Agnes Nickel, Marjorie Sharp, William Turner, Marjorie Walker, Tillie Weisgerber and Albert Yunker.

E. W. Campbell, personnel manager, introduced the long-service employees. Among those attending were company directors and also officials and employees from both Vancouver and Ocean Falls.

Brotherhood Endorses Forest Conservation

GLENS FALLS, N. Y.—The executive board of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers in session at Fort Edward last week adopted a resolution approving and supporting the forest conservation program of the U. S. Forest Service of the Department of Agriculture.

John P. Burke, president of the Brotherhood, pointed out that the entire paper industry and its 100,000 organized workers are vitally interested in the program for the reason that production and their jobs depend upon conservation and protection of the forests.

Frank C. Barnes, Jr., of Falls Church, Va., international treasurer of the union, presented a report on the American Forestry Congress held in Washington, D. C., in October, and to which he was a delegate. The program of the U. S. Forest Service developed from that meeting, attended by representatives of unions, industry and civic organizations.

Marathon Names Strong Employe Service Head

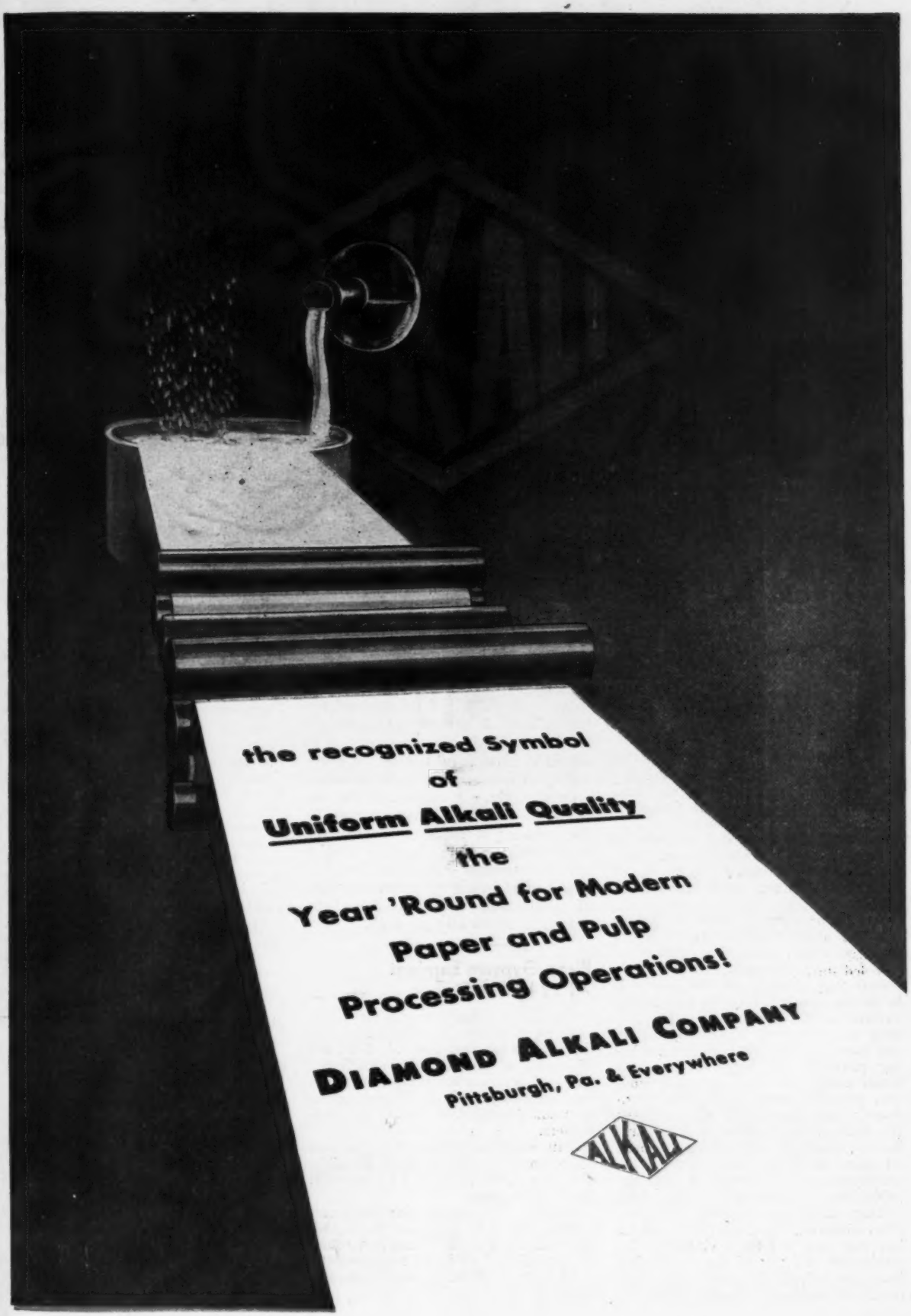
MENASHA, Wis. — Walter Strong has been appointed employe service manager for all plants and offices of Marathon Corporation. He has been personnel manager of the Menasha plant for several years. The present position is a new one, made necessary because of the rapid growth of the corporation and the corresponding increase in the number of its employes, now totaling more than 3,600 in Wisconsin and Michigan, all of whom will be under Strong's charge.

Mr. Strong will direct the employe service functions of the industrial relations departments in all the locations of the corporation inside of the United States.

He will also be responsible for the development and administration of policies governing vacations, group insurance, safety and first aid programs and facilities.

Also under his direction will be the social and recreational activities of all employe organizations, such as the Quarter Century clubs, Foremen's clubs and athletic programs in the various mills.

The company-wide employe service plans will be directed from Menasha, where the industrial relations staff office is located.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ANPA Reports On Use of Newsprint

NEW YORK — On reports of daily newspapers to the American Newspaper Publishers Association it is estimated that 4,296,268 tons of newsprint paper was consumed in the United States in 1946. It is estimated that 403,883 tons were consumed in December, 1946, for all uses. During 1946 the newspapers reporting to the ANPA used 3,136,276 tons, an increase of 27.7 percent over the year 1945 and an increase of 6.4 percent over the year 1941.

Daily newspapers reporting to the ANPA consumed 294,835 tons in December, 1946, compared with 225,378 tons in 1945 and 274,471 tons in 1941. This was a consumption increase in December, 1946, over December, 1945, of 30.8 percent and an increase of 7.4 percent over December of 1941, which was the base year for calculating allowable use for newspapers under former WPB Order L-240.

At the end of December, daily newspapers reporting to the ANPA had stocks of newsprint paper on hand amounting to 31 days which was the same number of days on hand at the end of November, 1946. This 31 days' supply at the end of December, 1946, compared with 37 days at the end of December, 1945; 52 days at the end of December, 1944; 52 days at the end of December, 1943; and 44 days at the end of December, 1941.

Canada's High Output Enhances Value

(*Continued from page 7*)

not only to newsprint but to fine paper, wrapping paper, board, etc., and to meeting the demands of Canadian book publishers and manufacturers of commercial and industrial products of paper; and pulp exports have been curtailed even though more attractive prices could have been realized in other countries.

At the opening of 1946 the industry had some 40,000 workers in its mills, to which some thousands were added during the year, and it is estimated that another 180,000 men will be in the woods before the end of the current season harvesting this year's crop of pulpwood. Constantly better and more comfortable facilities are being provided for loggers; new and better camps are being erected; modern, portable camps have been introduced; and food is in keeping with the findings of scientific and comprehensive study. Further, there has been an educational campaign, through the employment of instructors and the publication of pamphlets dealing with cutting, branching, driving and every other phase of woods operations which has not only helped to increase the production and pay of the worker but has also helped to reduce the incidence of accidents. Finally, there has been launched a logging mechanization project designed to develop more effective logging from the human as well as the economic standpoint.

These various steps to improve production efficiency have been spurred by steadily increasing operating costs throughout the industry, with the direct cost of pulpwood three or four times what it was before the war. Also there has been a marked increase in the prices paid for fuel, chemicals, machinery and other operational requirements on which the industry expends some $200,000,000 annually.

Newsprint controls in Canada were removed during the first half of 1946 but controls continue on pulp, fine paper, and paperboard in the domestic market. Accepting that these controls must be lifted during the coming months, spokesmen for the industry express the view that immediate removal would cause less dislocation than at a later date. Looking ahead little increase in the over-all production is expected in 1947.

Wood supplies and labor shortages continue to be serious problems. Pulpwood inventories are reported as being still far below a safe minimum. Production during the current woods season should exceed last season's record by at least 10 percent to maintain present production rates—and that increase is far from being assured. In the industry it is accepted that the major problem being faced in 1947 is not to increase output but to find means of maintaining the current rate of production, which, as has been shown, is at an all-time high.

Place Gypsum Earnings At 12 Million Dollars

CHICAGO — Net earnings of U. S. Gypsum Co. and its subsidiaries for the year ended December 31, 1946, are estimated at not less than $9.75 per share of common stock then outstanding, according to C. H. Shaver, secretary and treasurer, in a letter to stockholders.

This would be equivalent to a net income figure of approximately $12,239,500 with 1,199,179 shares of common stock outstanding.

Audited net income for the comparable period in 1945 was $4,352,183, after all charges and taxes and equal, after preferred dividend requirements, to $3.18 on 1,197,885 shares of common stock.

T. B. McCabe Addresses Bosses Night Dinner

PHILADELPHIA—Thomas B. McCabe, president of Scott Paper Co., addressed the annual "Bosses Night" dinner of the Chester Junior Chamber of Commerce on Wednesday of this week at the clubhouse, 511 Welsh street, Chester. A feature of the meeting was to be the presentation of the organization's distinguished service award to the outstanding young man of the community last year. Several hundred prominent civic, industrial and business leaders in the Chester area will attend the dinner.

Edward Northam, president of the local Junior Chamber of Commerce, will be toastmaster. The speaker will be introduced by Harrison F. Dunning, assistant to the vice-president of the Scott company.

Mr. McCabe, a native of Maryland, served during the war as an assistant to the Secretary of State and as foreign liquidation commissioner. He left the Government service in September of last year after receiving the Medal of Merit for his service.

In World War I, Mr. McCabe enlisted as a private and was discharged with the rank of captain. He is a graduate of Swarthmore College and began work with the firm he now heads in 1916 as a clerk in the sales department. He became president of the company in 1927.

He also is chairman of the board of the Federal Reserve Bank of Philadelphia. In 1940, he served in the Industrial Materials Division of the National Defense Advisory Commission. The following year he was made deputy director of the Division of Priorities and deputy administrator of Lend-Lease.

Mr. Dunning has been with the Scott Paper Co. since 1935, starting as a salesman, and later being named assistant plant personnel manager and manager of the Marinette Paper Co., Glens Falls, N. Y., before being appointed to his present position in 1942.

Maine Alumni to Meet Over Luncheon Table

NEW YORK — The annual "Paper Week" luncheon of the University of Maine Alumni and friends will be held in the Empire Room of the Hotel Lexington, Wednesday, February 26, 1947, at 12:30 p.m. This is a strictly informal get-together. All Maine men are welcome and urged to attend. Reservations may be made by writing to: Enright A. Ellis, Downington Manufacturing Company, Downingtown, Pa.

"With GULFCREST OIL we get safer, more efficient lubrication"

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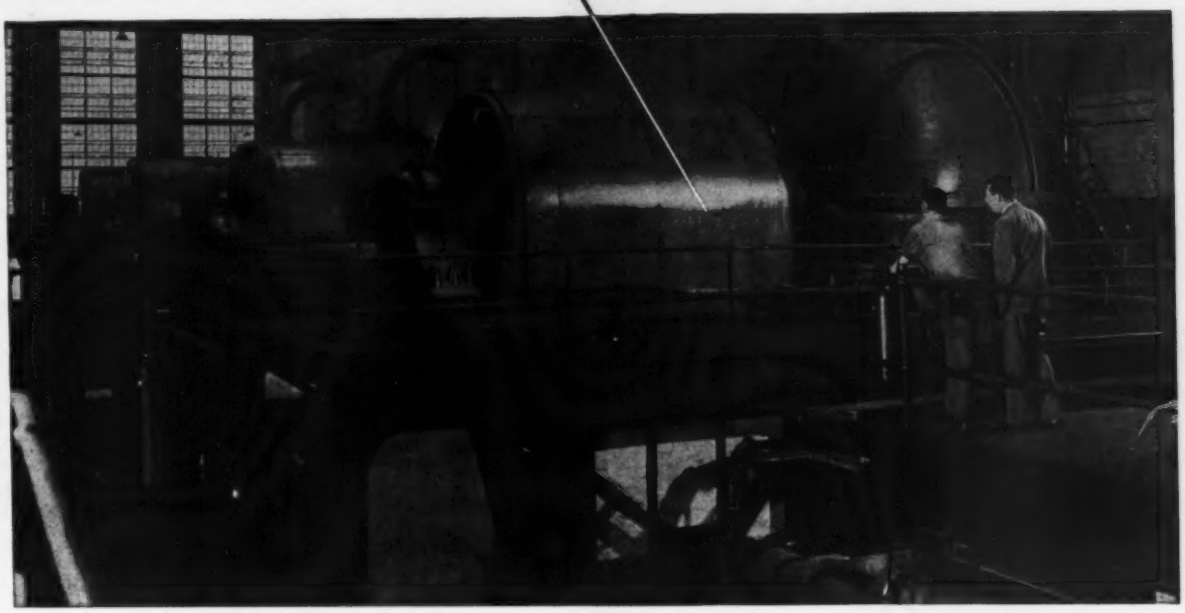

The Chief Engineer (left) is consulting with a Gulf Lubrication Engineer on steam turbine lubrication.

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Paper and Paper Stock Imports At New York and Other Ports

NEW YORK IMPORTS

WEEK ENDING JANUARY 18, 1947
SUMMARY

Newsprint .....9070 rolls
Cigarette Paper .....3 cs.
Filter Paper .....30 bls. 18 cs.
Drawing Paper .....2 cs.
Paperhangings ....24 bls. 10 cs. 3 pcls.
Photo Paper .....3 cs.
Writing Paper .....7 bls.
Sulphite Paper .....90 rolls
Shelf Paper .....3 cs.
Miscellaneous Paper ..360 rolls, 1 cs.

NEWSPRINT

Madden Reeve Angel & Co., Inc., Hallaren, Kotka, 1703 rolls.
N. Y. Journal American, Markland, Liverpool, N.S., 492 rolls.
N. Y. Tribune, Inc., Markland, Liverpool, N. S., 1721 rolls.
N. Y. World Telegram, Markland, Liverpool, N.S., 751 rolls.
Brooklyn Eagle, Inc., Markland, Liverpool, N.S., 779 rolls.
Herald Statesman, Inc., Markland, Liverpool, N.S., 72 rolls.
Sydney S. Hoffman, Markland, Liverpool, N.S., 61 rolls.
Richmond Newspapers, Inc., (Richmond, Va.), Markland, Liverpool, N.S., 1832 rolls.
National City Bank, Gripsholm, Gothenburg, 1659 rolls.

CIGARETTE PAPER

G. Anastas, Maid of Athens, Piraeus, 3 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Hillcrest Park, London, 9 cs.
H. Reeve Angel & Co., Inc., Anson P. K. Safford, London, 9 cs.
Establ. Manheimer, James Waynes, Bordeaux, 30 bls.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Hillcrest Park, London, 1 cs.
H. Reeve Angel & Co., Inc., Anson P. K. Safford, London, 1 cs.

PAPERHANGINGS

W. H. S. Lloyd & Co., Anson P. K. Safford, London, 24 bls., 10 cs.
F. Henjes, Uruguay, Copenhagen, 3 pcls.

PHOTO-PAPER

J. J. Gavin & Co., Inc., Anson P. K. Safford, London, 3 cs. (unsensitized).

WRITING PAPER

Green Kreigsmann Paper Co., Inc., Gripsholm, Gothenburg, 7 bls. (glazed woodfree).

SULPHITE PAPER

F. P. Gaskell Co., Gripsholm, Gothenburg, 90 rolls.

SHELF PAPER

Markt Hammacher Co., Primavera, Buenos Aires, 3 cs. (decorative).

MISCELLANEOUS PAPER

Eric M. Warburg, Inc., Gripsholm, Gothenburg, 360 rolls.
Triad Tool & Dye Co., Stavangerfjord, Oslo, 1 cs.

RAGS, BAGGINGS, ETC.

John A. Manning Paper Co., Anson P. K. Safford, London, 118 bls. old webbing.
Continental Bank Trust Co., Anson P. K. Safford, London, 126 bls. old cotton rags; 56 bls. paperstock.
(———), Hillcrest Park, London, 210 bls. old bagging.
Lush Cotton Products Co., Hoegh Silverstar, Cochin, 500 bls. cotton waste.
Volkart Bros., Hoegh Silverstar, Cochin, 347 bls. cotton waste.
Riverside Mills, Hoegh Silverstar, Bombay, 826 bls. cotton waste.
Brandwein Mazur Co., Hoegh Silverstar, Bombay, 100 bls. cotton waste.
Padawer & Co., Hoegh Silverstar, Bombay, 100 bls. cotton waste.
New England Waste Co., Hoegh Silverstar, Bombay, 425 bls. cotton waste.
Volkart Bros., Hoegh Silverstar, Bombay, 225 bls. cotton waste.
Guaranty Trust Co., Maid of Athens, Piraeus, 150 bls. rags.
Cecil Kutz, Anita, Santos, 130 bls. picker waste.
Cecil Kutz, Rio Branco, Pernambuco, 447 bls. pickers.
American Cotton Products Co., Rio Branco, Pernambuco, 112 bls. pickers.
Manufacturers Trust Co., Macalester Victory, Genoa, 123 bls. old waste bagging.
A. W. Fenton Co., Macalester Victory, Genoa, 119 bls. old dark cottons.
Grace National Bank, Macalester Victory, Genoa, 308 bls. old waste bagging.
Trust Co. of North America, Macalester Victory, Leghorn, 101 bls. rags.
E. J. Keller Co., Inc., City of Auckland, Port Said, 65 bls. white cotton rags.
Padawer Co., Vivtorialoide, Fortaleza, 558 bls. cotton waste.

GLUESTOCK

Irving Trust Co., Primavera, Buenos Aires, 79 bls.
Darmstadt Scott & Courtney, Primavera, Buenos Aires, 200 bls.
J. Gorvers Co., Primavera, Buenos Aires, 107 bls.

CASEIN

E. M. Sergeant Pulp & Chemical Co., Primavera, Buenos Aires, 200 bags (ground lactic).
American British Chemical Supplies, Primavera, Buenos Aires, 1000 bags (lactic).
Casein Co. of America, Division of The Borden Co., Rio Colorado, Buenos Aires, 502 bags.

WOODPULP

Pulp Sales Corp., Hallaren, Kotka, 502 bls. prime unbleached sulphite pulp; 325 bls. prime unbleached sulphate pulp.
Cellulose Sales Co., Braheholm, Munksund, 7542 bls. kraft sulphate pulp.
Pagel Horton & Co., Inc., Braheholm, Ornskoldsvik, 12,192 bls. dry sulphate pulp; 12,194 bls. dry bleached sulphate pulp.
Stora Kopparberg Corp., Braheholm, Skutskar, 4123 bls. dry woodpulp.
The Borregaard Co., Inc., Gripsholm, Gothenburg, 152 bls. dry chemical pulp, 30 tons.

PHILADELPHIA IMPORTS

WEEK ENDING JANUARY 18, 1947

Madden Reeve Angel & Co., Inc., Hallaren, Kotka, 702 rolls newsprint.
Pulp Sales Corp., Hallaren, Kutka, 6959 bls. prime unbleached sulphate pulp; 504 bls. prime unbleached sulphite pulp.
National City Bank, Hallaren, Kotka, 87 rolls solid white woodpulp boards.

Fire Destroys Mill of Peerless Paper Co.

PHOENIXVILLE, Pa.—A fireman was killed by a falling wall last Wednesday night in a blaze that destroyed the plant, stock and machinery of the Peerless Paper Co. at Oaks, Montgomery county.

Fred Cage, vice-president and general manager of the one-story brick and steel plant which covers 40,000 square feet, estimated the damage at $300,000. He said that the 50 employes of the plant would have to be furloughed until it is rebuilt.

The fire apparently started in a storage room at the rear of the plant. Edward Bivighouse, 48, of Schwenkville, left his machine to get a roller of paper in the storage room when he saw the flames shooting up from the rolls.

He shouted to the six other night employes who seized extinguishers and fought the flames. An alarm was telephoned to fire companies in Phoenixville and Montclare. The plant is two miles away from Phoenixville, but by the time firemen arrived the flames had made too good a start. The plant made paper towels and toilet paper.

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Week's Record of Trends in The Pulp and Paper Market

Office of the PAPER TRADE JOURNAL, Wednesday, January 22, 1947.

Trade rumors continue to the effect that more than $200 a ton is being paid for newsprint in the spot market. While the amount of newsprint offered at this price is still infinitesimal, reports seem to warrant admission that some New York deals call for three times the current base price of $85 a ton. This situation is said to stem from the fact that odd carlots occasionally become available to this deluxe market when, among other reasons, shipments originally scheduled for foreign buyers are sidetracked in New York either through lack of shipping facilities or because overseas buyers fail to make proper financial arrangements. This marginal tonnage at a high figure is bound to influence basic tonnage eventually. Such increases beyond the present contract price of newsprint will continue so long as small publishers are forced to obtain floating tonnage. Perhaps the solution lies with the independent newsprint producers, they might possibly find a way to better the present supply of newsprint to small users.

Crown Zellerbach Corporation borrowed the first $6 million of its recently announced $20 million bank credit from Bankers Trust Company and Bank of Manhattan Company of New York in December, according to reports to the Securities Exchange Commission. Of this amount $2,457,629 was used to repay the balance of 2¼% notes outstanding for timber lands purchased in 1945 and the remainder was added to corporate funds for use in connection with the company's major program of plant additions and improvements. . . . National Container Corporation has acquired the entire common stock of Moore Boxes, Inc., of Chicago, corrugated box manufacturers. This will be the fifth converting plant operated by National, in addition to its four pulp and paper mills. Four box manufacturing plants are located in New York City, Jacksonville, Fla., Bradford, Pa., and Oakland, Cal. National Container Corporation sales for 1946 are estimated at over $29 million, against 1945 sales of $18,700,000.

Average hourly earnings in the pulp and paper industry for the first 9 months of 1946 have increased 12 percent over the 1945 average, according to the Department of Commerce, while hourly earnings for all industries showed an increase of only 4 percent. Since 1939, however, the increase in all industries, the nondurable industries, and the paper and pulp industry has been between 65 and 70 percent. The year 1947 should witness continued improvement in worker attitude and ability. This is indicated by the steady, though slow, decline in the rate of accession and separation. These rates climbed to new peaks during the war and their sudden return to prewar levels is not to be expected. As the influences of war become further removed, reports indicate that the turn-over rate will continue to decline. Latest reports show four thousand additional production workers were added to the labor force of the pulp and paper industry during October, 1946. This brings the total number of production workers up to 372,000 persons or some 16 percent above the 1945 level.

The index of general business activity for the week ended January 11 declined to 147.6 from 148.0 in the previous week, compared with 132.9 for the corresponding week in 1946. The index of paperboard production eased to 184.6 from 199.0 in the previous week, compared with 149.8 for the corresponding week in 1946.

Paper production for the week ended January 11 was estimated at 104.6 percent, compared with 96.3 for the preceding week, with 95.3 for the corresponding week in 1946, with 88.7 for 1945, with 91.2 for 1944, and with 88.0 percent for the corresponding week in 1943.

Paperboard production for the week ended January 11 was 102.0 percent of capacity, compared with 85.0 percent for the preceding week, with 94.0 for the corresponding week in 1946, with 95.0 for 1945, with 93.0 for 1944, and with 88.0 percent for the corresponding week in 1943.

Wood Pulp

Domestic and Canadian supplies of market pulp continue steady with a slight upward trend in output. New supplies from overseas continue to be small and may fall short of meeting the full needs of many pulp-purchasing domestic paper mills which are now short on inventory.

Old Rope and Bagging

Old rope market remains firm with Manila maintaining its 5.75c per pound level and sisal at 4.75c; while other quotations continue steady and unchanged.

In the bagging market domestic gunny remains $4.50 per 100 pounds to mills f.o.b. New York; foreign gunny continues $4.75 to $5. All good grades are firm at prevailing levels.

Rags

Reports indicate that rag content paper mills will probably buy ungraded market cotton in quantity this year. Since ungraded cotton is not used in the textile industry and normally compares favorably pricewise with new cotton cuttings, such continued use is very plausible. Rag content mills have recently been using quite a bit of new lint cotton anyway. Plans now call for a purchasing representative to locate in western Texas, and also the possibility of growing cotton on leased or purchased land for use in papermaking. The program is still only an idea and is not expected to be carried out for several years.

Waste Paper

Market appears strengthened since mills have completed their inventory check. Most high grades are steady at prevailing levels. Some reports indicated sales of corrugated, ledger and book stocks were slightly above recent levels.

Worthington Convention Gathers at Holyoke

HOLYOKE, Mass.—Worthington Pump & Machinery Corporation's Holyoke works is currently host to the annual Worthington-Ransome Construction Equipment Division sales organization meeting being held here.

Members of this organization, who are located throughout the country and who are in attendance at this conference, are: L. S. Riedel, regional manager of the northeastern region with headquarters in New York City; W. H. Dufill, regional manager of the east central region and who is located in Cleveland; H. C. Sargent, regional manager of the southeastern region, with headquarters in Washington, D. C.; H. J. Schultz, regional manager of the central region, with central office in Chicago; R. E. Rodenhis, regional manager of the western region who is located in San Francisco; G. W. Morrow, railroad industry specialist, with headquarters in Chicago; and G. H. Allen, mining industry specialist, with headquarters in Denver.

The meeting is being presided over by C. F. Oechsle, assistant vice-president and manager of the Worthington Construction Equipment department; W. J. Fleming, assistant manager of the construction equipment department and field sales manager of the Construction Equipment Div.; W. F. Lockhardt, general sales manager of the Ransome Machinery Co., and the three product managers, H. W. Stoddart, J. W. Clinger and J. S. Hazen.

Fine Paper Mills Lift Price Lists

HOLYOKE, Mass. — Local fine paper mills have jacked up their prices again, the second lift since OPA was scrapped last year. In December an increase average of 10 percent went into effect, and this month another price boost was put into effect. This second rise ranged between five and ten percent.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, January 22, 1947

BLANC FIXE — Raw materials remain tight as demand continues active. Pulp is currently quoted at $40 per ton, in barrels, car lots, at works; the powder is currently quoted at $60 per ton car lots, f.o.b. works.

BLEACHING POWDER—Supplies adequate to meet current demands although there is some delay in current shipments. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—Current prices on processed acid precipitated casein are reported around 46 to 52 cents per pound for both domestic and Argentine grades; f.o.b. shipping point, with quantity not specified at the present time. Supplies are expected to increase in the next few months.

CAUSTIC SODA—Market remains critical with supplies tightest ever. Shipments are behind schedule. Cutback production further reduces stocks. Solid caustic soda is reported at $2.50 per 100 pounds; flaked and ground offered at $2.90 to $3.00 per 100 pounds.

CHINA CLAY — Supplies becoming increasingly tighter as demand increases. Quotations remain unchanged. Domestic filler clay is currently quoted at from $8.50 to $9 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $22 to $45 per long ton, export warehouse. All prices quoted in car lots.

CHLORINE—Market tight as demand continues to exceed output, stocks low. Lack of tank cars continues to hamper deliveries. Quotations unchanged. Chlorine is currently quoted at $2 to $2.25 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—Gum rosin in drums, per 100 pounds net, in yard New York, car lots, B, D, $8.90; E, F, G, H, I, K, M, $9.60; WG, $9.90; WW, $9.90. Wood Rosin, per 100 pounds, l.c.l., f.o.b. N. Y., B, $6.45; FF, $7.95; G, H, I, $8.75; WW, $8.95. Export demand for gum rosin is particularly strong, forcing prices up.

SALT CAKE—Demand increasing with supplies showing little improvement. Prices remain unchanged. Domestic salt cake is quoted at $15 per ton in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots f.o.b. shipping point.

SODA ASH — Demand active as supplies continue short, previous orders filled. Contract orders for 1947 heavy. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $1.05; in paper bags, $1.20; and in barrels, $1.60.

STARCH—Supplies are showing steady improvement. Previous orders filled. Starch prices remain unchanged. The pearl grade is quoted at $3.62 per 100 pounds; powdered starch at $3.73 per 100 pounds; both prices in bags, car lots f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand active, supply fair. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.20 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 to $2 per 100 pounds, in bags, at works.

SULPHUR—Strong seasonal demand is reported with stocks plentiful to meet all requirements. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $20 per long ton. All prices in car lots.

TALC—Domestic and French grades are moving in fair volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per tons at mines; Canadian at $35 to $45 per ton. All prices in car lots.

MARKET QUOTATIONS

With the elimination of price controls on paper, pulp, rags and other materials, the quotations given below once more become indicative of trends in an open market. At the moment they can be of little more, for, while some volume of business still is being done, under contract at the figures given below, fluctuations representing special conditions are too varied and too frequent to permit prices to be given as representing a wholly stabilized market.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract	$84.00	@	—
Sheets	103.00	"	—
Kraft—per cwt.—Carload Quantities Zone A, Delivered			
Superstandard Wrapping	*$5.75	@	$6.00
No. 1 Wrapping	*5.50	"	5.75
Standard Wrapping	*5.25	"	5.50
Standard bag	*5.25	"	5.50

* Prices for Standard Wrapping are for 40 lb. base weight; for Standard Bag for 30 lb. base weight.

Tissues—Per Ream 24x36 (480) 10 lb. Zone 1.			
Wh. No. 1 Frd.	1.10	@	1.20
Wh. No. 1 M. G.	1.10	@	1.20
Wh. No. 1½	.95	@	1.10
Wh. No. 2	1.00	@	1.10
Wh. Anti-Tar.	2.25	@	3.50
Kraft Unbl.	1.15	@	1.25
Manila No. 2	.90	@	1.05
Toilet—Per Case of 100 rolls 1 M Sheets.			
Unbleached	4.47	@	5.50
Bleached	6.50	"	—
Paper Towels — Per Case of 3750 Zone 1.			
Wh. C. fold 11x13⅓	4.89	@	—
Br. Sgl. fold 10 in.	2.37	"	2.48
Br. M'tif'd 9½x14¾	3.48	"	—
Br. M'tif'd 9½x9¾	2.37	"	2.48
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila 35 lb.	6.00	"	7.00
Boards, per ton—			
News	*70.00	@	75.00
Chip	*67.50	"	73.00
Sgl. Mla. Li Chip	*80.00	"	89.00
White Pat. Coated	*86.00	"	101.50
Kraft Liners 42 lb.	*84.00	"	100.00
Binders Boards	94.00	"	126.00

Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5. regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—White, Assorted Items	Bonds		Ledgers
100% Rag Ext. No. 1	$39.75 @ $46.75	$40.90 @	$48.00
100% Rag.	32.85 " 38.50	34.00 "	40.00
85% Rag	.... "	30.55 "	38.75
75% Rag	24.30 " 28.50	24.45 "	30.00
65% Rag	.... "	.... "	....
50% Rag	20.05 " 24.50	21.25 "	25.75
25% Rag	17.85 " 21.75	19.00 "	23.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers.. White, Assorted Items	Bonds		Ledgers
No. 1	$12.00 @ $14.50	$13.15 @	$16.00
No. 2	11.25 " 13.75	12.25 "	15.00
No. 3	.... "	.... "	....
No. 4	10.60 " 13.00	11.75 "	14.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper			
No. 1 Glossy Coated	$14.70 @		$16.75
No. 2 Glossy Coated	13.75 "		15.50
No. 3 Glossy Coated	13.20 "		16.00
No. 4 Glossy Coated	12.80 "		14.50
No. 1 Antique (Watermarked)	11.35 "		12.75
No. 2 Offset	10.65 "		12.25
A Grade E. F.	10.60 "		12.00
A Grade S. & S. C.	11.00 "		12.50
B Grade E. F.	10.30 "		11.75
B Grade S. C.	10.70 "		12.25
C Grade E. F.	10.00 "		11.50
C Grade S. C.	10.40 "		12.00
D Grade E. F.	9.70 "		11.00
D Grade S. & S. C.	10.10 "		11.50

Ivory & India at $.50 cwt. extra.

Wood Pulp

Domestic mill prices delivered with former OPA freight allowances.

	Per Short ADT		
Groundwood	$75.00	to	—
Unbleached Sulphite	105.00	"	—
Bleached Sulphite	115.00	"	122.50
Bleached Soda	105.00	"	115.00
Unbleached Kraft	102.50	"	—
Southern Kraft	90.00	"	—

Canadian mill prices delivered with freight allowances of $7.50 per ADT; unless otherwise specified:

	Per Short ADT		
Regular Kraft	$102.50	to	—
Select Unbleached Kraft (no freight allowance)	105.00	"	—
Unbleached Sulphite	105.00	"	—
Glassine Unbleached Sulphate (no freight allowance)	90.00	"	—
Bleached Soda	105.00	"	115.00
Groundwood	75.00	"	80.00
Sideruns Pulping News	75.00	"	—
Hardwood and Specialty Grades	Nominal		

Swedish wood pulp prices, per ton of 2,000 lbs. air dry weight on dock usual Atlantic and Gulf ports with an average freight cost of about $9.00 per short ton included. Subject to change as it is said these prices are not satisfactory to Swedish producers:

	Per Short ADT
Bleached Sulphite	$120.00
Bleached Kraft	126.00
Unbleached Sulphite	95.00
Unbleached Kraft	89.00

Finnish quotations f.o.b. shipping point

	Per Short ADT
Bleached Sulphite	$165.00
Unbleached Sulphite	132.50
Unbleached Sulphite (special grade)	137.50
Unbleached Sulphate	132.50
Unbleached Sulphate (special grade)	159.00

Other European countries, at the present time, are not quoting on prompt and forward deliveries of wood pulp, because they have no tonnage available for export.

New Domestic Cotton Cuttings

(Prices delivered Mill Plus Dealer's Commission)

Finnish quotations f.o.b. shipping point

White Shirt	$10.50
Light Silesias	7.50
Unbleached Muslin	11.00
White Back Blue Overalls	8.25
Blue Overalls	7.75
Unbl. Fancy Shirt	4.50
Light Percales	5.50
Light Prints	5.25
Washables	4.00
Blaechable Khaki	5.50
Unbleachable Khaki	5.00
Cottonades	4.50

Old Domestic Cotton Rags

(F.O.B. Shipping Point Plus Dealer's Commission)

	Per 100 lbs.
No. 1 Whites Repacked	$5.00
No. 1 Whites Miscellaneous	4.25
No. 2 Whites Repacked	4.00
No. 2 Whites Miscellaneous	3.50
Blue Overalls	3.75
Thirds and Blues Repacked	3.00
Thirds and Blues Miscellaneous	2.50
No. 1 Roofing Rags	1.85
No. 2 Roofing Rags	1.75
No. 3 Jute Bagging	1.65
No. 4 Brussels and hard back carpets	1.65
No. 5A Roofing Rags	1.65

New Foreign Cotton Cuttings

(Prices delivered Mill)

	Per 100 lbs.
New Dark Cuttings	$6.00 to ....
New Mixed Cuttings	6.50 " ....
Light Silesias	9.00 " 10.00
Light Flannelettes	8.00 " 9.00
New White Cuttings	13.00 " 15.00
Fancy Shirt Cuttings	9.00 " 10.00
Light Prints	8.00 " 10.00
Bleachable Khaki, No. 1	7.00 " 7.50
Unbl. Khaki, No. 1	6.25 " 6.75

Old Foreign Rags

(F.O.B. New York)

	Per 100 lbs.
No. 1 White Linens	$14.00 to 16.00
No. 2 White Linens	12.00 " 13.00
No. 3 White Linens	8.00 " 9.00
No. 4 White Linens	8.00 " 9.00
No. 1 White Cottons	10.00 " 12.00
No. 2 White Cottons	8.00 " 9.00
No. 3 White Cottons	6.50 " 7.00
No. 4 White Cottons	5.00 " 5.50
Extra Light Prints	7.50 " 8.00
No. 1 New Light Prints	6.25 " 6.75
Med. Light Prints	5.25 " 5.75
Dutch Blue Cottons	5.25 " 5.50
Checks and Blues	4.00 " 4.25
Linsey Garments	4.50 " 5.00
Dark Cottons	3.75 " 4.00
Old Shopperies	3.25 " 3.50
New Shopperies	3.25 " 3.50

BAGGING

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny, No. 1	$4.75 to 5.00
Domestic Gunny, No. 1	4.25 " 4.50
Light Wool Tares	4.50 " 4.75
Heavy Wool Tares	4.75 " 5.00
Bright Bagging	4.25 " 4.50
Foreign Manila Rope	6.00 " 7.00
Domestic Manila Rope	5.75 " ....
Jute Strings	4.50 " 5.00
No. 1 Sisal Strings	4.00 " 4.50
Mixed Strings	1.75 " ....

Waste Paper

Prices to Mills

(Dollars Per Ton)

F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00 @ $110.00
No. 1 Hard White Envelope Cuts	85.00 " 100.00
No. 1 Hard White Shavings, unruled	100.00 " —
No. 1 Hard White Shavings, ruled	80.00 " 90.00
Soft White Shavings, one cut	85.00 " 90.00
No. 1 Soft White Shavings	75.00 " 80.00
Soft White Shavings, Misc.	65.00 " —
No. 1 Fly Leaf Shavings	40.00 " —
No. 2 Fly Leaf Shavings	(nominal)
No. 1 Groundwood Fly Leaf Shavings	30.00 " 33.00
No. 2 Mixed Groundwood Fly Leaf Shavings	(nominal)
Mixed Colored Shavings	(nominal)
Mixed Groundwood Colored Shavings	(nominal)
Overissue Magazines	(nominal)
No. 1 Heavy Books & Magazines	38.50 " —
Mixed Books	22.00 " 25.00
No. 1 White Ledger	50.00 " 52.00
No. 2 Mixed Ledger, colored	40.00 " 45.00
New Manila Envelope Cuttings, one cut	65.00 " 75.00
New Manila Envelope Cuttings	65.00 " 75.00
Extra Manilas	(nominal)
Mixed Kraft, Env. & Bag Cuttings	70.00 " —
Kraft Envelope Cuttings	80.00 " 85.00
Triple Sorted, No. 1 Brown Soft Kraft	55.00 " —
New 100% Kraft Corrugated Cuttings	55.00 " 60.00
No. 1 Assorted Old Kraft	40.00 " —
New Jute Corrugated Cuttings	27.00 " —
Old 100% Kraft Corrugated Containers	(nominal)
Box Board Cuttings	23.00 " —
White Blank News	45.00 " —
Overissue News	35.00 " —
No. 1 News	25.00 " 26.00
No. 1 Mixed Paper	19.00 " 21.00
Old Corrugated	28.00 " 30.00
Mill Wrappers	22.00 " 25.00

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—	
India	.26 @ .29
Fine Polished—	
Fine India	.31 " .35
Unpolished—	
Paper Makers	.20 " .26
Tube Rope	.22 " .27½
Wrapping	.26 " .33½
Cotton	.70 " —
(Hard Fiber)	
Mex. Sisal	.21 " .24
Manila	.33 " —
(Hemp)	
Polished Hemp	.63 " —

PHILADELPHIA

Domestic Rags (New)

(F.O.B. Eastern Shipping Point)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01¾
Fancy Percales	.04¾
New Black Soft	.03¾
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¾
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¾

Domestic Rags (Old)

White No. 1—Repacked	3.80 to 4.00
Mixed White	3.50 " —
White No. 2—Repacked	2.90 " —
Thirds and Blues—	
Miscellaneous	1.80 " 2.50
Repacked	2.20 " —
Roofing Stock—	
Foreign No. 1	1.85 " —
Domestic No. 1	1.75 " —
Domestic No. 2	1.65 " —
Roofing Bagging	1.35 " —
Old Manila Rope	5.75 " —

Bagging

(F.O.B. Eastern Shipping Point)

Gunny No. 1—	
Foreign	Nominal
Domestic	3.00 to 3.50
No. 1 Clean Bright—	
Sisal Strings	.04 " —
No. 2 Clean Bright—	
Sisal Strings	.03 " —
Sisal Jute	.02½ " .02¾
Scrap—	
No. 1	3.25 " 3.50
No. 2	1.75 " 1.85
Wool Tares, heavy	4.00 " 4.25
No. 1 New Light Burlap	3.90 " 4.00
New Burlap Cuttings	3.75 " 4.00

Old Papers

(F. o. b Phila.)

Mill Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00 @ $115.00
No. 1 Hard White Shavings, unruled	100.00 " —
Soft White Shavings, one cut	90.00 " 95.00
White Blank News	45.00 " 50.00
Soft White Shavings, Misc.	65.00 " 70.00
No. 1 White Ledger	52.00 " 55.00
No. 2 Ledger, colored	42.00 " 45.00
No. 1 Heavy Books & Magazines	38.50 " 40.00
Overissue Magazines	nominal
New Manila Envelope Cuttings	65.00 " 75.00
No. 1 Assorted Old Kraft	40.00 " —
No. 1 Mixed Paper	19.00 " 21.00
Box Board Cuttings	23.00 " 25.00
Kraft Corrugated Cuttings	nominal
Old Corrugated	28.00 " 30.00
Overissue News	35.00 " —
No. 1 News	26.00 " 30.00

BOSTON

Old Papers

(F. o. b. Boston)

Mill Prices, Baled

No. 1 Hard White Shavings, unruled	5.00 @ 6.00
No. 1 Hard White Shavings, ruled	5.00 " 6.00
Soft White Shavings, Mis.	5.00 " 6.00
No. 1 Fly Leaf Shavings	1.67½ " —
No. 2 Fly Leaf Shavings	2.00 " —
No. 1 Groundwood Fly Leaf Shavings	1.25 " —
No. 2 Groundwood Fly Leaf Shavings	.90 " —
Mixed Colored Shavings	.75 " —
New Manila Envelope Cuts, one cut	2.87½ " —
Hard White Envelope Cuts, one cut	3.37½ " —
Triple Sorted No. 1 Brown Soft Kraft	2.50 " —
Mixed Kraft Env. & Bag Cuttings	2.75 " —
Kraft Envelope Cuttings	3.75 " —
No. 1 Heavy Books & Magazines	1.92½ " —
New Manila Envelope Cuts, one cut	2.87½ " —
New Manila Envelope Cuttings	2.65 " —
White and Colored Tabulating Cards	3.25 " —
Groundwood Tabulating Cards	1.35 " —
White Blank News	1.65 " —
No. 1 Assorted Old Kraft	— " 3.00
No. 1 Mixed Paper	— " .95
Overissue News	— " 1.25
Box Board Cuttings	.72½ " —
New Corrugated Cuttings, Kraft	2.25 " —
Old 100% Kraft Corrugated Containers	1.75 " —
Old Corrugated Containers	— " 1.40
Jute Corrugated Cuttings	1.07½ " —

Bagging

(F. o. b. Boston)

Gunny Bagging—	
Foreign	5.00 @ —
Domestic	5.25 " —
Sisal Rope No. 1	6.00 " —
Sisal Rope No. 2	5.50 " —
Mixed Rope	5.25 " —
Transmission Rope—	
Foreign	(nominal)
Domestic	3.50 " —
Manila Rope—	
Foreign	(nominal)
Domestic	5.75 " —
Soft Jute Rope	4.50 " 5.00
Jute Carpet Threads	6.00 " —
Bleachery Burlap	8.50 " 9.00
Scrap Burlap—	
Foreign	(nominal)
Domestic	3.00 " 3.25
South America	— " 3.25
Wool Tares—	
Foreign	4.50 " —
Domestic	4.50 " —
Aust. Wool Pouches	5.00 " 5.25
New Zealand Wool Pouches	5.25 " 5.50
New Burlap Cuttings	5.50 " 6.00
Heavy Baling Bagging	5.25 " 5.75
Paper Mill Bagging	3.50 " 3.75
No. 1 Roofing Bagging	1.75 " —

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—	
New Light Prints	.06 @ .06¼
Fancy Percales	.04¼ " .05
New White No. 1	.06¾ " .07
New Light Flannelettes	.09½ " .10
Canton Flannels, Bleached	.06 " .06¼
Underwear Cutters, Bleached	.06¾ " .06¾
Underwear Cutters, Unbleached	.05¾ " .06
Silesias No. 1	.06 " .06¾
New Black Silesias	.03 " .03¾
Red Cotton Cuttings	.03½ " .04
Soft Unbleached	.11½ " .12
Blue Cheviots	.05½ " .04
Fancy	.02¾ " —
Washable	.02¾ " —
Khaki Cuttings	.02¾ " .03
O. D. Khaki	.06 " .06¼
Corduroy	.03¾ " .03¾
New Canvas	.06¼ " .06¾
B. V. D. Cuttings	.11½ " .12

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—	
Repacked	3.80 @ —
Miscellaneous	3.20 " —
White No. 2—	
Miscellaneous	2.65 " —
Twos and Blues, Repacked	2.20 " —
Old Blue Overalls	2.25 " 2.50
Thirds and Blues, Repacked	2.20 " —
Miscellaneous	1.80 " —
Black Stockings	3.50 " 4.00
Roofing Stock—	
No. 1	2.00 " —
No. 2	1.90 " 2.00
No. 3	1.35 " —
No. 4	1.35 " —
No. 5, Quality A	1.35 " —
Quality B	1.20 " —
Quality C	.95 " —
Old Manila Rope	6.00 " —

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

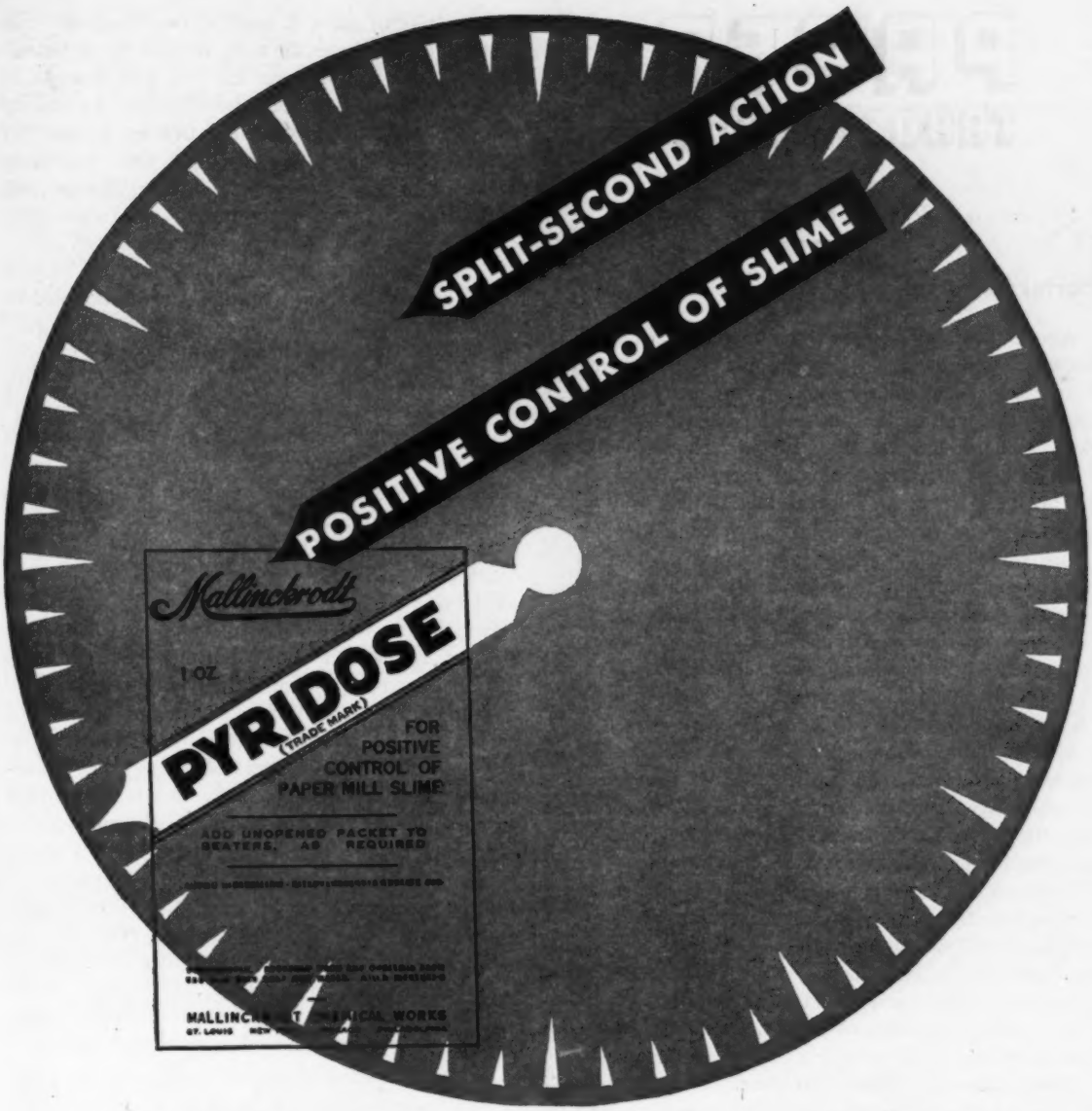
CHICAGO

Waste Paper

(F. o. b. Chicago)

Mill Prices, Baled

Shavings—	
No. 1 Hard White Envelope Cuts, one cut	$110.00 @ $120.00
No. 1 Hard White Shavings, unruled	105.00 " 115.00
No. 1 Soft White Shavings	80.00 " 95.00
No. 1 White Ledger	55.00 " 65.00
No. 1 Heavy Books & Magazines	40.00 " 45.00
White Blank News	43.00 " 49.00
Mixed Kraft Env. & Bag Cuttings	75.00 " 85.00
No. 1 Assorted Old Kraft	45.00 " 55.00
Overissue News	38.00 " 42.00
No. 1 News	30.00 " 35.00
No. 1 Mixed Paper	19.00 " 20.00
Old Corrugated	32.00 " 36.00
Mill Wrappers	25.00 " 29.00



PYRIDOSE effectively and economically controls paper mill slime. It starts to work at once.

PYRIDOSE is more rapidly effective because its active ingredient is 140 times more soluble than other comparable agents. It is *deadly to common slime-forming organisms.*

A handy one-ounce packet of Pyridose—thrown unopened into the beaters or refiners—starts the treatment immediately.

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PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

W. L. Cook, Editor

Portal to Portal

About the only definite thing that appears to be known abouth the portal-to-portal pay problem is that it involves such enormous sums of money as to stagger the mathematics of most industrial treasuries. Of late years we have become accustomed to think in big—very big—sums of money, but always the prospect has been held out that if we paid we might have an opportunity to get it back at some future time. Now, however, a demand is suddenly laid upon industry, that promises nothing, that threatens bankruptcy, and coolly bases its claims for vast sums on the facts that industry itself, having been given no previous inkling of the accounting that would be required is in a position to be laid under a heavy penalty for its lack of such information.

Against this threat specific action is needed. The following principles seem to be generally recognized as imperative, and in putting them into concrete form the American Paper and Pulp Association has performed a distinguished service.

Congress must define compensable "work" so as to recapture the obvious original meaning of "productive work," except in those cases where by custom, contract or agreement "work" has been extended to include non-productive preliminary or incidental activities. This, of course, would not apply to work which by its nature is non-productive, such as maintenance or watch and care. It is believed that the latter can be adequately covered by reference to custom, practice and agreement. The importance of this "productive" definition of work to the Forest Industries, especialy with reference to woods workers, is self-evident.

This definition must be made to apply to pending as well as future claims. In the opinion of many authorities, this can be accomplished without raising any grave constitutional question, by removing from the jurisdiction of the courts any claims which are based on other definition. According to other authorities, the same end may also be accomplished, under the present circumstances, by a direct redefinition of "work" by Congress in the exercise of its power over interstate commerce. Bills combining both theories have been introduced .

A short and uniform statute of limitations on suits for back pay is needed, in order to put an end to the threat of "hidden bankruptcy" by the silent accumulation of claims over long periods of years, varying state by state. It has also been proposed that, in any case, whatever the time allowed by the statute of limitations for bringing the suit, which might be two or three years, recovery be limited to the amount involved for some reasonable maximum period, say a year. The interaction of these two provisions would substantially reduce pending claims as well as put a time limit on uncertainty in the future. Bills combining both ideas have been introduced.

As the pertinent statutes now read, the amount found due for back pay is automatically doubled by the mandatory addition of "liquidated damages," regardless of the innocence or guilt of the employer. All of the bills so far seen contain clauses leaving the question and amount of "liquidated damages" for the court to determine on the merits on each case.

Much of the confusion involved in this problem is due to changing administrative interpretations or to belated determination by the courts that interpretations on which both employers and employees had been relying were wrong. All of the bills so far seen contain provisions relieving the employer from liability where he can show that he relied in good faith on a current administrative interpretation.

Change in the burden of proof. In the famous Mt. Clemens case, it was held that if the employees can show general circumstances indicating that something is due but have no ready means of proving the exact amount, the burden is on the employer to supply such proof from his records. The net result is that employers are confronted by the choice of attempting to keep track of time spent by employees in anything which might conceivably ever be construed as "work" or risking generalized liability by the failure to keep such records. This needs to be changed to provide, as is the case in ordinary litigation, that the burden of proof is on the plaintiff.

It is felt by many observers that many of these suits are inspired by the prospect of extravagant legal fees. As the law is now written, the court sets a "reasonable" fee, which the defendant must pay. The fee is frequently further increased by an agreement for a percentage of the total recovery. It is understood that the going rate is between 20 and 30 percent. Since the amounts involved are staggering, such a percentage encourages gambling on "long shot" cases, regardless of the expense to the defendant or ordinary ideas of justice. Several of the bills presently introduced would limit the fees to 5 percent, with a $5,000.00 ceiling, and forbid the assignment of claims, which would discourage the contingent fee gamble.

These various proposals are being considered in detail by a subcommittee of the Senate Judiciary Committee and will shortly be taken under consideration by a similar committee in the House. The "Gwynne" bill, H.R. 584, introduced by Representative Gwynne (R., Iowa) appears effectively to ex-

press all of the proposals described above. S. 70, as originally introduced by Senator Wiley (R., Wisconsin), plus amendments proposed by Senator Capehart (R., Indiana), appears to be equally effective.

Winter Block

Shipments not only from frozen Baltic ports, but also from snowbound Canadian points, it appears, are closing in on deliveries of paper. Railroads are exerting heroic efforts to keep the loading spurs of Canada's newsprint mills supplied with empty box cars, and have given assurance that this traffic will have preference. Heavy coal movement northward is lengthening the time of transit, reducing the miles per day, of the cars. Wintry conditions at the border gateways are impeding the exchange of cars between Canada and United States carriers. The situation is expected to get worse before it improves.

This situation has reached a point that caused the American Newspaper Publishers Association this week to warn its members that the empty box car situation is in a critical stage and because of the inability of the Canadian lines to function normally, coupled with the lack of assistance from their United States connections, the situation may deteriorate further and warnings given weeks and months earlier are repeated that newspaper publishers may consider curtailing consumption to prolong existing supplies to compensate for an irregular movement of their newsprint supply from Canada.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
December 7	106.6	December 8	99.0
December 14	106.7	December 15	99.0
December 21	102.7	December 22	96.5
December 28	71.8	December 29	60.8
January 4, '47	96.3	January 5, '46	89.1
January 11	*104.6*	January 12	95.3

COMPARATIVE MONTHLY SUMMARIES

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1946	94.7	98.4	104.4	102.7	100.7	104.6	94.0	104.7	101.3	106.4	105.5	*97.0*	101.1

COMPARATIVE YEARLY SUMMARIES

	1940	1941	1942	1943	1944	1945	1946
Year Average	85.6	97.4	90.4	87.8	88.1	89.7	101.1

PAPERBOARD OPERATING RATIOS†

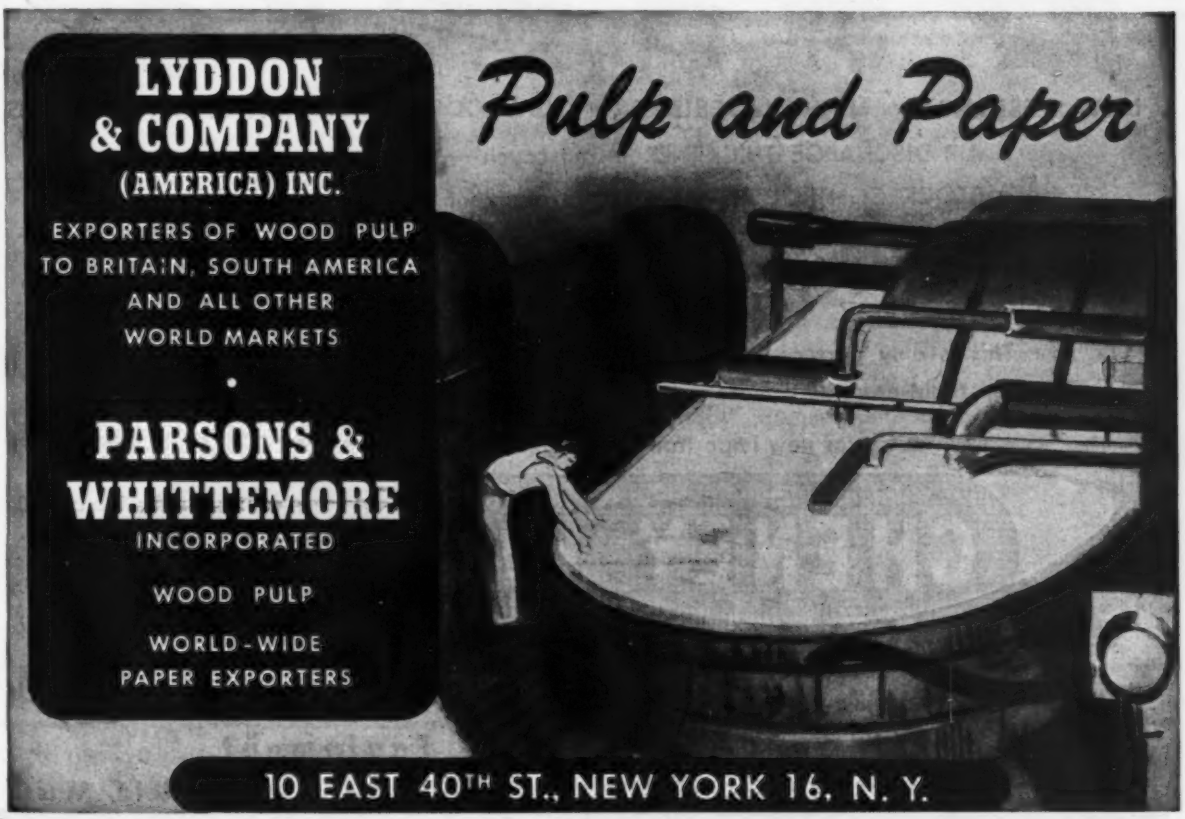
Current Weeks—1946		Corresponding Weeks—1945	
December 7	99	December 8	97
December 14	102	December 15	98
December 21	102	December 22	92
December 28	66	December 29	52
January 4, '47	85	January 5, '46	75
January 11	102	January 12	94

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1946	90	97	100	99	94	97	89	99	96	100	99	*92*	96

NOTE: The annual revision of capacity for the paper index shows a capacity increase of 4.6%. The new capacity figures have been used in calculating the production ratio beginning with the week ending January 4, 1947.

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.



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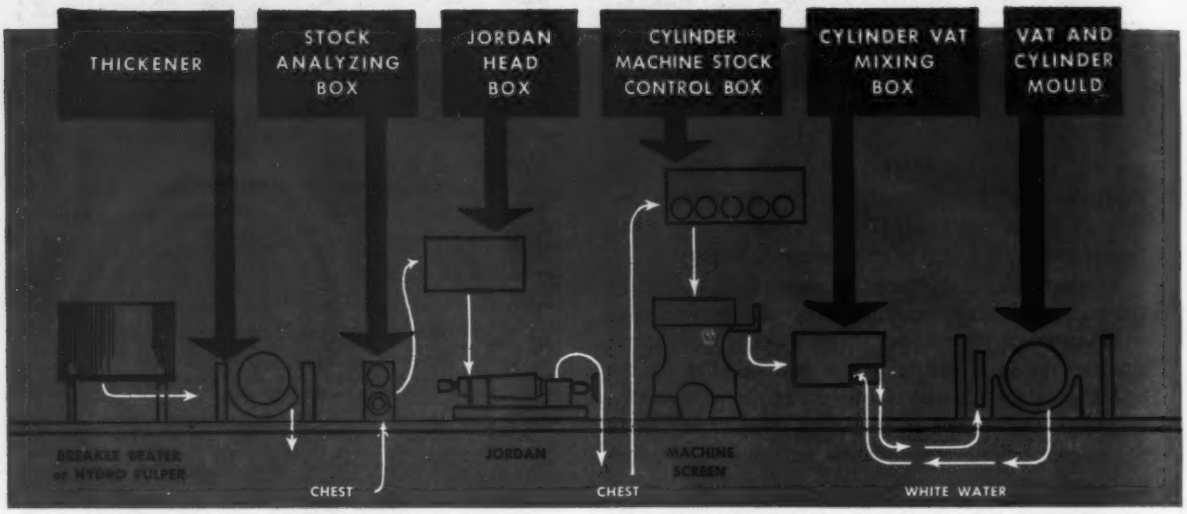

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Sodium Sulphite Woodpulps

By Harold R. Murdock[1]

Abstract

An outline is given of the uses of sodium sulphite as a pulping agent for the production of semichemical and purified pulps.

The development of the processes using sodium sulphite for the completely delignified pulps has been hindered by the difficulties encountered in the recovery of the chemicals. However it appears that it is well suited to the production of high yield semichemical pulps.

Sodium sulphite possesses properties which well justify its use in the pulping of wood. Besides being quite soluble in water, sodium sulphite is a neutral salt. It has reducing properties which not only aid the solubilizing of the noncellulose constituents of the wood but assures its own stability in the complex wood pulping reactions. The hydrolysis of sodium sulphite in water to sodium hydroxide and sulphurous acid gives to the wood pulping operation two of the most important chemicals known to the industry. At elevated temperatures sodium sulphite forms ligninsulphonic salts in much the same way they are formed in the acid sulphite process. Furthermore, this chemical can react with aldehyde and ketone groupings present in some of the lower lignin polymers and the polyuronide hemicelluloses in the wood. In pulping straw and other annuals of high silica content, sodium sulphite does not dissolve the silica as is done in the alkaline pulping processes; consequently there is a higher yield of usable pulp with unique papermaking properties.

In 1880 Cross and Bevan referred to the neutral sodium sulphite method as one of the four pulping processes available to industry for the production of cellulose from wood and other plants. However it was not until 1900 that this chemical was first utilized commercially. Schacht, in Germany, used the neutral sulphite process for pulping straw and claimed yields over 15% higher than were then available by the acid sulphite process. Drewsen in 1900 appears to have been the first to use sodium sulphite in the commercial pulping of wood. He used sodium sulphite solutions in the preliminary penetration of wood chips and then in a second stage pulped the chips by the usual bisulphite process. In obtaining better penetration of the chemical into the chips, he claimed to have avoided the "burning" of the chips which was a troublesome problem in the bisulphite process at that time. A definite reduction on the corrosion of the digester was also recognized by Drewsen as well as the elimination of an odor nuisance from sulphur dioxide in the vicinity of the mill. Later he applied this process to the pulping of cornstalks, bagasse, and straw. In 1914, he made another important contribution in pulping poplar wood chips with sodium sulphite solutions by means of a single-stage pulping procedure. This process gave pulps of excellent color and quality, but serious difficulties were encountered in regenerating the spent liquors from the process in order that the sodium sulphite could be reused and the process have a sound economic basis. Primarily because of this recovery problem, the process does not appear to have aroused much interest at that time.

Completely Delignified Pulps

Around 1928 Bradley and McKeefe, who appreciated the possibilities of producing a strong, high-color chemical pulp by the sodium sulphite process, made extensive studies on methods for recovering the chemicals used. They also tried combinations of other sodium salts with sodium sulphite as the cooking agent. The sulphide, thiosulphate, hydroxide, carbonate, bicarbonate, and bisulphite of sodium all showed some promise but in each experiment sodium sulphite was found to be the necessary chemical for the process. As a result of these studies, Bradley and McKeefe patented a rather complex system, in which the spent liquor from these Keebra processes, was combined with the recovery of spent liquors from the acid sulphite, soda, kraft, and other modified processes conceived by these inventors. Many pulp producers studied these methods with great care, for at that time no practical means was available for bleaching the strong kraft pulps to high white color and retaining the original strength of the unbleached pulp. At least one large and important producer erected a mill based upon the sodium sulphite process of Bradley and McKeefe. However the recovery of the chemicals from this process was still cumbersome and involved, so that the neutral sodium sulphite process for the delignification of wood to obtain a bleachable pulp has not been used extensively.

Just prior to World War II, one of the largest pulp mills in Sweden was reported to have installed a mill for operating the sodium sulphite process. The operators had decided after careful research that the method outlined by Billington, Chidester, and Curran, of the U. S. Forest Products Laboratory was a practical method for recovering the chemicals from this process. In brief, the method consists of evaporating and incinerating the spent liquors and then adding to the dissolved smelt, which is essentially sodium sulphide, a sufficient amount of sodium bicar-

[1]Member TAPPI; Consulting Chemical Engineer; now with Natural Resources Section, AMG, Tokyo, Japan.

bonate to convert the sulphide into sodium carbonate. The evolved hydrogen sulphide is then burned to sulphur dioxide which, in turn, is allowed to react with sodium carbonate solution to produce the sulphite cooking solution for reuse in pulping. It is probable that this Swedish pulp mill will continue with this process in the postwar period.

All investigations of the neutral sodium sulphite process have resulted in reports that "neutral sulphite pulps possess the strength of unbleached kraft and the whiteness of unbleached sulphite made by the acid process." It is amazing, in view of this evidence of superior quality, that the neutral sodium sulphite process has not reached practical fruition. Now that the technology of bleaching kraft pulps has been perfected to a high degree and the construction of many new mills has been based on the kraft process, there is less need for considering a new process of chemical recovery to utilize the sodium sulphite pulping procedure. Nevertheless, this process is still capable of producing superior pulp as compared to kraft pulps, but the margin of difference has been lessened somewhat by technological improvements in the bleached kraft process.

Semidelignified Pulps

A semichemical pulp is a high-yield pulp, made by treating wood chips with a chemical in order to soften the cementing substances and then rubbing the fibers of the wood apart by a mechanical process. In this chemical-mechanical process, sodium sulphite has proved to be a superior pulping chemical. Over 150,000 tons of neutral sulphite semichemical pulp were produced annually by the procedure outlined by Rue, Wells, Rawling, and Staidl of the U. S. Forest Products Laboratory, in 1926. Until recently the applications of this process had been limited to the production of pulp for corrugated and liner board, insulating board, and many types of wrapping papers. Now that attention has been directed to the tremendous opportunity for this process in pulping hardwoods of many species and the possibility of bleaching these pulps to various improved degrees of brightness, this procedure for manufacturing high-yield pulps has received great stimulation. The process consists essentially in giving wood chips a mild cook in a rotary digester with a solution containing 60 to 80 grams of sodium sulphite per liter and 25 to 30 grams of sodium bicarbonate per liter. The sodium bicarbonate is a buffer chemical which is reduced in amount when the species of wood permits. This cooking chemical can be added directly to the chips in a very high ratio of liquor to wood, or preferably in an impregnation stage using an excess of liquor, and withdrawing the excess when a sufficient amount of chemical has been absorbed by the chips. This procedure makes it possible to pulp the chips with a much smaller ratio of chemical to wood than is used in the process for producing bleachable pulps by the sodium sulphite method mentioned earlier in this report. After the chemical present around the chips has been drawn off so that only 7 to 15% based on the wood remains, the temperature is raised to 150 to 160°C. and maintained for about 5 hours, depending upon the yield and product desired, the wood used, and other factors. Yields of 75 to 85%, based upon the air-dried wood, are possible. The softened chips are fiberized in mechanical equipment such as disk refiners and screened to remove the oversize bundles of fibers which were not sufficiently softened by the chemical treatment.

During the past few years a modification of this procedure has been patented and used in a few mills. The chips are softened by the neutral sulphite or kraft liquor in a continuous manner, at elevated temperatures and pressures, depending upon the product desired. The treated chips then continue under pressure through a disk refiner in order to separate the fibers mechanically.

Interesting results have been reported in pulping straw by the sodium sulphite semichemical process. Straw contains a substantial percentage of silica. Sodium sulphite does not react with this colloidally deposited silica in the plant so that this very fine silica is present in the finished pulp. Besides augmenting the yield of pulp obtained, this silica adds desirable properties to some papers. Glassine papers are more opaque and strawboards when made from this pulp are stiffened decidedly by the silica present.

Chestnut wood chips, after being extracted with water to remove the valuable tannin content, have been treated by the neutral sodium sulphite procedure for many years, to produce a pulp which is admirably suited for 9-point corrugated paper. The pulp is outstanding because of its stiffness characteristics. Butchers' paper and other low grade wrapping papers have been produced commercially from gum, tupelo, and other hardwoods. Such pulps from hardwoods have been proposed as a replacement for fully cooked chemical pulps in the manufacture of newsprint.

Recently the semichemical pulping idea has taken on new significance. At least half the cost of producing bleachable pulps is due to the wood itself. This situation is not likely to change with the present labor situation. Consumers of pulp are turning their attention to these high-yield pulps. New techniques of bleaching these pulps to unprecedented degrees of whiteness heralds a healthy increase in the production of neutral sulphite semichemical pulps from many woods. This process is the best suited of all the many semichemical methods to produce a bleached pulp because it primarily removes the lignin from the wood without impairing the cellulose. The residual lignin amounting to about 10 to 15% of the pulp, can be removed readily with chlorine. Alkaline treatment following the chlorine can be used to alter the papermaking characteristics of the pulp to almost any extent desired. Without the alkaline wash the pulp produces tinny, hard papers suitable for glassine. With increasing alkaline treatment the character of the pulp changes so that it can be used in coating raw stock, bonds, book, and many printing papers. A more complete treatment with alkali permits higher yields of durable pulps than when the completely delignated pulps are made by the standard type chemical pulping processes.

This neutral sodium sulphite semichemical pulping process opens up real opportunities to the small paper mill, particularly those mills which have to purchase their pulp in the open market. These high-yield pulps can be produced in simpler equipment at less than half of the capital investment necessary for a pulp mill sufficient to make completely delignified pulps in the digester and bleaching plant. Because of the higher yields available by this process less wood handling and less chemical consumption per ton of pulp produced are possible. In most localities chemical recovery to avoid stream pollution problems will not be necessary. Modern chemical recovery installations for the kraft industry are very expensive. The semichemical process will not require this recovery unit so that the semichemical process using sodium sulphite is best adaptable to small paper mills.

Bleaching of Semichemical Pulps*

By F. A. Simmonds[1] and R. M. Kingsbury[2]

Abstract

Results of bleaching semichemical pulps, chiefly neutral sulphite from various hardwoods, are reported which illustrate chemical requirements, yields, properties of bleached pulps, and to a limited extent give a comparison of the single-stage hypochlorite, the single-stage sodium peroxide, and the multistage chlorine bleaching treatments.

Depending on the kind of wood, the lignin content of the pulp and the brightness required, the chlorine requirements for neutral sulphite semichemical pulps ranges from 10 to 30% based on pulp weight. Yields of bleached pulps, based on the wood, range from 55 to 85% depending on the degree of cooking and the method and degree of bleaching.

If only a low brightness, 75 or below, and a small strength increase are required, either the single-stage hypochlorite or the sodium peroxide processes appears to be satisfactory. Yields up to 98% of unbleached pulp are obtainable in the one-stage processes. When either a high brightness, a large strength increase, or both are required, a multistage chlorine process should be used. With this process, yield of bleached pulp may be as low as 80% of the unbleached pulp.

Subsequent to the development of the neutral sulphite semichemical pulping process at the Forest Products Laboratory *(1,5)* and the recognition of its peculiar suitability for hardwoods, there has been a sustained effort at the Laboratory to provide further information on the process and its possibilities as one means to increase and improve the utilization of hardwoods *(1-6, 8-15)*.

Special consideration has been given to the bleaching of semichemical pulp for use in fine papers. Accounts of mill-scale papermaking trials in this connection will be found elsewhere *(7, 13)*. Although the bleaching work was begun several years ago, a comprehensive study of commercially feasible bleaching conditions was delayed by war work. These studies have now been resumed. A report dealing with variables of the one-stage sodium peroxide process as applied to aspen neutral sulphite semichemical pulp was recently issued by the Forest Products Laboratory *(9)*. The purpose of the present paper is to provide preliminary information indicating what is to be expected in bleaching semichemical pulp by one-stage methods and by the conventional multistage chlorination process.

Multistage chlorination bleaching of semichemical pulp from hardwoods was pioneered by Traquair

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Chemists, Forest Products Laboratory,[2] Forest Service, U. S. Department of Agriculture.

[2] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

TABLE I.—EFFECT OF ONE-STAGE BLEACHING ON THE BRIGHTNESS, YIELD, AND LIGNIN CONTENT OF HARDWOOD NEUTRAL SULPHITE SEMICHEMICAL PULPS

Unbleached Pulp				Bleaching Conditions[1]				Bleached Pulps				
								Yield basis unbleached pulp		Brightness[3]		
Identity	Yield basis wood %	Lignin %	Brightness[3] %	No.	Agent	Amount %	Duration hr.	%	Lignin %	Initial %	After aging days	After aging %
Black tupelo, Pulp 1 (*Nyssa silvatica* M.)	80	18.5	54.6	1	Na_2O_2	2	3	99.0	17.0	65.0	54	62.6
				2	NaOCl	7	¾	...	14.7	62.4	..	...
				3	NaOCl	8	1½	95.5	...	67.1	54	62.0
				4	NaOCl	10	1½	95.5	...	68.7	55	64.8
Pulp 2	80	17.6	52.2	5	NaOCl	10	¾	94.0	14.8	[5]68.2	12	65.6
				6	Na_2O_2	2	1	...	...	56.7	..	...
				7	Na_2O_2	3	1	...	...	57.3	..	...
				8	Na_2O_2	[4]3	3	...	...	63.6	..	...
Yellow-poplar (*Liriodendron tulipfera* L.)	79	14.3	44.7	9	Na_2O_2	2	4	...	14.0	53.0	50	52.6
				10	Na_2O_2	3	5	...	...	53.0	67	53.3
				11	Na_2O_2	[4]3	6	...	...	53.7	..	...
				12	NaOCl	10.5	2½	96.3	11.0	59.1	80	57.3
Sweetgum, Pulp 1 (*Liquidambar styraciflua* L.)	75.8	14.3	42.3	13	Na_2O_2	2	3	...	...	51.6	52	50.4
				14	Na_2O_2	3	3	...	...	52.9	52	51.6
				15	NaOCl	10	1	94.6	10.6	65.8	27	62.4
				16	NaOCl	10	1½	94.0	...	67.1	17	63.3
[6]Pulp 2	78.0	14.5	50.9	17	Na_2O_2	2	4	97.7	...	65.1	..	...
				18	Na_2O_2	3	4	...	...	64.1	..	...
				19	Na_2O_2	[4]3	4	...	13.5	70.2	33	69.4
				20	NaOCl	10	1½	94.0	...	71.4	17	67.7
Sugar maple (*Acer saccharaphorum* K. Koch)	80.0	13.8	42.9	21	Na_2O_2	2	4	...	...	55.0	61	54.5
				22	Na_2O_2	3	4	...	...	57.8	61	57.7
				23	Na_2O_2	[4]3	5	...	13.3	62.2	41	61.9
				24	NaOCl	10	1¼	98.5	...	68.3	..	...
				25	NaOCl	10	1½	96.0	11.7	68.9	33	65.3
White ash (*Fraxinus americana* L.)	77.3	22.9	50.5	26	Na_2O_2	2	4	98.3	...	62.9	61	61.1
				27	Na_2O_2	3	5	...	...	65.5	61	63.9
				28	NaOCl	10	1	95.2	18.5	60.5	56	58.5
Southern cottonwood (*Populus deltoides*)	76.0	14.5	41.4	29	Na_2O_2	3	4	99.0	...	56.5	61	56.0
				30	Na_2O_2	[4]3	4	...	...	58.0	..	...
				31	NaOCl	10	[8]2¼	[8]96.0	[8]10.6	[5]65.4	55	61.2
Aspen (*Populus tremuloides*)	72.0	10.4	60.3	32	Na_2O_2	2	7	97.1	...	70.5	180	68.0
				33	Na_2O_2	3	5	96.1	10.7	72.5	180	69.9
				[7]34	$Ca(OCl)_2$	10	7½	96.8	7.6	74.8	53	72.5
				35	NaOCl	10	1¼	92.0	6.7	68.2	73	66.7
Paper birch (*Betula papyrifera*)	75.0	12.8	49.3	[7]36	$Ca(OCl)_2$	10	4½	96.5	9.4	73.2	62	70.7
				37	NaOCl	10	3	93 1	...	65.6	40	62.4

[1] The percentage value is based on weight of pulp, moisture-free basis, sodium peroxide being expressed as such and hypochlorite as available chlorine. Consistence ranged from 10 to 13%. Temperature in sodium peroxide bleaching was 60° C. and 34 to 37° C. in hypochlorite bleaching.

[3] Test sheets for brightness were formed from suspensions at pH 5. Brightness was measured with a Hunter reflectometer calibrated in accordance with TAPPI Standard T 217 sm-42. Aging comprised storage at room temperature while shielded from light.

[5] Maximum value.

[4] The bleaching solution was made up with 10% sodium silicate and 2% sulphuric acid (specific gravity 1.84) based on weight of pulp whereas all other peroxide solutions contained 6% silicate but no acid.

[6] Wood used for this pulp came from a different locality than that used for pulp No. 1.

[8] Average values.

[7] At initial pH value of 11.1 as compared with a value of 10.5 for the NaOCl bleaches on this pulp.

TABLE II.—EFFECT OF ONE-STAGE BLEACHING ON THE STRENGTH[1] OF NEUTRAL SULPHITE SEMICHEMICAL PULPS

Unbleached Pulp										Bleached Pulp										
		Freeness		Burst		Tear			Tensile[2]	Bleach			Freeness		Burst		Tear			Tensile[2]
Identity		Canadian Standard ml.	Schopper Riegler ml.	points	pts. per lb. per ream	grams	gm. per lb. per ream	Double Folds No.	lb. per in. width	p.s.i.	No.	Agent	Amount %	Canadian Standard ml.	Schopper Riegler ml.	points	pts. per lb. per ream	grams	gm. per lb. per ream	Double Folds No.	lb. per in. width	p.s.i.
Black tupelo, Pulp 1		650	850	13.3	0.25	52.8	1.00	1	7.7	954	1	Na_2O_2	2	615	825	14.7	0.24	61.6	1.03	3	8.2	976
(*Nyssa sylvatica* M.)		365	650	28.0	0.54	62.0	1.20	41	17.0	2,800				365	650	30.0	0.52	68.0	1.18	49	17.0	2,800
		260	550	31.0	0.61	60.0	1.17	45	19.5	3,600				260	550	34.5	0.60	66.0	1.15	71	18.5	3,650
											2	NaOCl	7	650	850	10.9	0.20	47.6	0.86	2	8.7	1,035
														365	650	28.0	0.53	60.0	1.16	50	16.5	3,100
Pulp 2		540	775	13.1	0.22	66.8	1.17	5	9.4	1,303				260	550	31.5	0.60	56.0	1.08	68	18.5	3,750
		365	650	24.0	0.39	76.0	1.37	22	13.5	2,200	5	NaOCl	10	435	705	19.6	0.35	70.8	1.28	13	12.1	1,835
		260	550	27.0	0.48	76.0	1.36	40	16.0	3,000				365	650	25.0	0.42	67.0	1.20	26	13.5	2,000
														260	550	29.0	0.44	59.0	1.30	48	16.0	2,600
											6	Na_2O_2	2	457	720	18.6	0.33	75.6	1.35	8	11.6	1,675
														365	650	19.0	0.40	76.0	1.40	18	14.0	2,200
														260	550	27.0	0.48	74.0	1.39	30	17.0	3,000
Yellow-poplar		540	775	21.5	0.38	73.2	1.29	13	16.0	2,580	9	Na_2O_2	2	520	765	20.9	0.38	63.6	1.17	17	13.7	2,385
(*Liriodendron tulipfera* L.)		365	650	32.0	0.56	68.0	1.22	47	22.0	4,500				365	650	32.0	0.56	62.0	1.15	44	18.0	3,680
		260	550	36.0	0.65	62.0	1.13	82	24.0	5,400				260	550	36.0	0.64	58.0	1.05	120	22.5	5,100
											12	NaOCl	10.5	450	715	30.2	0.54	61.6	1.11	42	19.6	3,630
														365	650	33.0	0.60	54.0	1.00	76	21.0	4,400
														260	550	36.0	0.67	46.0	0.87	120	24.5	5,200
Sweetgum, Pulp 1		530	770	17.2	0.33	57.2	1.09	10	14.0	2,110	15	NaOCl	10	450	715	25.5	0.43	66.8	1.17	14	13.7	2,220
(*Liquidambar styraciflua* L.)		365	650	24.0	0.48	60.0	1.18	35	18.0	3,500				365	650	29.0	0.52	65.0	1.12	28	16.0	3,200
		260	550	28.0	0.58	55.0	1.11	58	21.0	4,500				260	550	33.0	0.61	59.0	1.04	43	22.0	4,500
Sugar maple		425	695	24.4	0.42	28.1	0.66	8	16.6	2,620	25	NaOCl	10	415	690	28.1	0.52	41.6	0.78	21	17.1	3,080
(*Acer saccharaphorum* K.		365	650	28.0	0.48	29.0	0.75	16	18.0	3,100				365	650	29.0	0.53	46.0	0.82	25	18.5	3,400
Koch)		260	550	36.0	0.60	32.0	0.84	48	21.5	4,250				260	550	32.0	0.58	47.0	0.84	46	22.0	4,500
											28	NaOCl	10	627	835	8.3	0.15	24.0	0.43	1	7.6	480
White ash														365	650	18.0	0.67	38.0	0.67	4	12.3	1,850
(*Fraxinus Americana* L.)		645	845	5.8	0.11	32.0	0.62	4	3.0	3,940				260	550	19.0	0.67	37.0	0.67	5	14.0	2,300
Southern cottonwood		365	650	12.0	0.27	38.0	0.73	3	11.0	1,500	31	NaOCl	10	397	675	42.3	0.72	58.0	1.00	169	24.0	5,215
(*Populus deltoides*)		260	550	13.0	0.34	38.0	0.67	5	14.0	2,300				365	650	46.5	0.77	55.7	1.07	169	25.2	5,775
		385	665	40.5	0.74	58.0	1.05	159	24.8	5,200				260	550	54.5	0.91	51.5	0.91	250	30.0	7,900
		365	650	42.0	0.75	58.0	1.05	155	24.0	5,200	33	Na_2O_2	3	600	817	31.8	0.57	60.6	1.09	32	19.4	3,655
Aspen		260	550	46.0	0.84	52.0	1.07	205	27.0	6,200				365	650	47.0	0.93	45.0	0.87	173	31.3	7,950
(*Populus tremuloides*)		595	815	26.1	0.45	51.2	0.91	12	18.1	3,200				260	550	58.0	1.05	42.0	0.81	230	35.5	9,500
		365	650	47.1	0.87	37.6	0.70	90	32.3	7,410	34	$Ca(OCl)_2$	10	620	830	23.6	0.43	52.4	0.98	14	14.7	2,860
		260	550	58.0	1.06	33.0	0.61	135	35.5	8,800				365	650	39.0	0.75	47.0	0.92	160	29.5	6,800
														260	550	42.0	0.82	41.0	0.82	220	31.0	7,300
											35	NaOCl	10	590	810	32.7	0.57	64.4	1.17	124	22.1	4,240
														365	650	51.0	0.91	46.0	0.88	315	32.5	8,000
														260	550	56.0	1.02	42.0	0.79	400	35.2	9,400
											36	$Ca(OCl)_2$	10	210	490	40.3	0.80	32.4	0.65	167	29.2	7,040
Paper birch														...	300	44.0	0.88	27.0	0.54	190	32.0	8,600
(*Betula papyrifera*)		...	400	52.1	0.93	44.4	0.80	227	32.5	8,100	37	NaOCl	10	...	360	55.5	1.03	38.4	0.70	267	33.4	9,130
		...	300	56.0	1.00	41.0	0.72	240	38.5	10,000				...	300	58.0	1.05	56.0	0.64	280	34.5	9,900

[1] Beater test according to TAPPI Standard T 200 m-43. Ream size 25 × 40 — 500. Ream weight of test sheets conditioned at 50% relative humidity and 75° F. ranged from 50 to 60 pounds.
[2] Tensile strength values in pounds per inch width have been adjusted to a ream weight of 55 pounds 25 × 40 — 500.

and Rawling as shown by their U. S. patent (10). This patent embodies cooking, fiberization, bleaching, and equipment and describes the potential usefulness of the bleached pulps. It is stated that strong white pulps are obtainable in yields averaging over 60% of the wood; that the pulps are not only satisfactory for book paper but, because they hydrate easily, are also suitable for bond, writing, parchment, glassine, and waxing papers.

In effect, the bleaching procedure of the process includes two stages of chlorination. The first one is a treatment at a low density of up to 5% in which the greater proportion of the total chlorine requirement is applied continuously, as could be done with the chlorination equipment used in the Rue bleaching system. The second chlorination stage is made at a high density of 20 to 30% which is said to be an important factor in effecting "resolution of the shives." The amount of heat evolved in this stage is not enough to damage the pulp. Equipment generally available in present bleach plants is not suited to high-density chlorination. However, data reported in this paper indicate that reasonably satisfactory results can be obtained with conventional chlorinating equipment operating at a low density.

Some Requirements of Unbleached Semichemical Pulp

In the bleaching of semichemical pulp certain requirements with respect to the shives and the freeness of the unbleached pulp should be taken into account. Shives are to be expected in any semichemical pulp produced in an advantageously high yield and in a freeness range practicable for washing. However, the shives must be small for satisfactory results in bleaching. Any discussion of shives, as well as that of freeness, necessarily involves the fiberizing step in the preparation of the unbleached pulp. Therefore, as an attempt to set up tentative specifications on shive size, it is suggested that the degree of fiberization should be such that not more than 1% by weight of the pulp coming to the screening operation will be rejected by a 7-cut plate.

Freeness should be as high as is compatible with the acceptable size of shive. That is important because this type of pulp tends to form compact mats on vacuum washer which are appreciably more resistent to the flow of the shower water through them than conventional long-fibered or even short-fibered pulps. Furthermore, freeness is usually lowered by the bleaching treatment.

Washing of Semichemical Pulp

In connection with washing semichemical pulps during the bleaching process some difficulty has been experienced in mill trials that have been made mainly due to the sticking of the mat on the wire of the washer. However, this difficulty is not encountered on the vacuum washer in use at the Forest Products Laboratory. It can be readily appreciated that when the freeness of a semichemical pulp is definitely less than that of a conventional pulp, production rate in washing will not be so high as with the conventional pulp, especially if an attempt is made to get a normal amount of shower water through the mat. For thorough washing at a reasonable rate, two- or possibly three-stage washing is worth consideration. Present practice in the pilot plant operation at the Forest Products Laboratory is two-stage washing after each reaction stage.

One-stage Hypochlorite and Sodium Peroxide Bleaching

A comparison of one-stage hypochlorite and sodium peroxide bleaching treatments as applied to several hardwood pulps for use in a book coating stock requiring a minimum brightness of 65 for the semichemical component is given in Tables I and II.

The sodium peroxide solutions used contained 20 grams per liter of the peroxide, 0.5 gram per liter of magnesium silicate, and 6% sodium silicate based on the weight of pulp (moisture-free basis) except for bleaches 8, 11, 19, and 30. For these exceptions, the amount of silicate used, based on pulp weight, was 10% with an addition of 2% of sulphuric acid (specific gravity 1.84), this variation of silicate is thought to have resulted in an improved buffering action increasing the stability of the bleaching solution.

A commercial sodium hypochlorite solution was used and the calcium hypochlorite solution was prepared from bleaching powder containing about 70% available chlorine. The respective alkalinities of these solutions were 7.5 and 3.0 grams per liter expressed as calcium oxide, and the corresponding contents of available chlorine, were 55 and 66 grams per liter. When these solutions were applied in amounts equivalent to 10% chlorine based on the pulp, the initial pH value of the mixture was about 10.5 for the sodium hypochlorite and about 7.5 for the calcium hypochlorite. In order to obtain a bleaching effect equal to that of the sodium hypochlorite, it was necessary to add sufficient alkali, either lime or caustic, to the calcium hypochlorite solution to raise the initial pH value to the desired range of 10.5 to 11.

Brightness Attainable by One-stage Bleaching

The results of Table I indicate that a brightness of 75 is about the highest that can be expected in bleaching neutral sulphite semichemical pulp in one stage with economically practicable amounts of sodium peroxide or hypochlorites. A brightness in this range, however, appears to be satisfactory for certain grades of book paper.

For any pulp some experimentation is advisable to determine the most satisfactory conditions for either the sodium peroxide or the hypochlorite methods of treatment. In bleaching with sodium peroxide it appears that the degree of buffering action resulting from the proportions of sodium silicate and sulphuric acid used in preparing the bleaching solution can have an appreciable influence on brightness. For example, in comparing the effect of the specific proportion of 6% silicate and no acid with that of 10% silicate and 2% sulphuric acid in conjunction with 3% sodium peroxide, the results in Table I show that the latter gave about 5 points higher brightness for the black tupelo pulp 2, sugar maple pulp, and sweetgum pulp 2. There was, however, no improvement in the case of yellow-poplar and cottonwood pulps with the higher proportion of silicate and acid.

When using hypochlorite in the one-stage treatment, it was necessary to have the alkalinity high for favorable brightness development. Although the optimum alkalinity was not established for these pulps, it appears that sufficient alkali, either lime or caustic, should be added so that the initial pH of the bleaching mixture is in the range of 10.5 to 11. However, for bleaching any one pulp most effectively with hypochlorite it is advisable to establish the optimum amount of alkali for that pulp. Like the peroxide, the

TABLE III.—EFFECT OF MULTISTAGE CHLORINATION-HYPOCHLORITE BLEACHING ON ASPEN SEMICHEMICAL PULPS AND COMPARISON WITH SOFTWOOD MITSCHERLICH SUPLHITE PULP

Pulp No.	Condition of Pulp	Bleach No.	Bleaching Conditions[1] Stage No.	Agent	Amount, %	Consistence, %	Temperature, °C.	Duration, min.	Brightness,[4] %	Yield: Basis Unbleached Pulp, %	Yield: Basis Wood, %	Lignin, %	Total Pentosans, %	Strength Development[3] Beating Time, min.	Freeness (Schopper-Riegler) ml.	Burst: pts.	Burst: pts. per lb. per ream	Tear: gm.	Tear: gm. per lb. per ream	Tensile: lb. per sq. in.	Tensile: lb. per in. width	Number of Double Folds	Density, gm. per cc.
									Aspen[4] Neutral Sulphite Semichemical														
P-2266	Unbleached	...	..	.....	...	...	..	...	40.4	...	71.0	9.8	17.9	0	760	36.5	0.68	53.2	1.00	4,660	22.6	68	0.63
														40	550	48.7	0.88	40.4	0.75	8,330	31.6	221	0.80
														100	200	60.9	1.12	28.8	0.53	12,100	38.1	516	0.97
P-2266	Bleached	834	1	Cl_2	15.0	2.0	25	90						0	670	67.2	1.20	60.8	1.08	8,960	36.1	299	0.75
			2	NaOCl	2.0	4.0	35	90	81.2	...	...	0.5	20.7	20	565	70.6	1.34	50.8	0.95	10,850	41.3	261	0.80
														60	320	81.6	1.50	40.4	0.75	13,380	44.3	292	0.92
														80	235	81.0	1.50	35.6	0.66	12,450	40.2	517	0.94
														100	160	79.2	1.51	35.6	0.67	15,320	47.5	580	0.98
P-2266	Bleached	837-8	1	Cl_2	12.0	2.0	25	56						0	705	61.0	1.09	74.4	1.34	7,520	31.7	338	0.70
			2	NaOH	1.0	10.0	60	45						20	580	70.3	1.28	67.4	1.22	9,550	37.2	485	0.78
			3	NaOCl	1.0	5.0	37	60	81.0	84.5	60.0	0.3	21.0	60	335	79.8	1.46	51.0	0.94	12,450	43.2	510	0.88
														80	242	83.2	1.51	45.2	0.84	12,900	42.3	668	0.93
														100	160	...	1.49	42.0	0.83	14,125	45.4	659	0.96
P-2266	Bleached	836	1	Cl_2	12.0	2.0	25	60						0	765	55.3	1.01	72.4	1.32	7,220	29.2	226	0.74
			2	NaOH	10.0	10.0	55	60						40	605	66.6	1.23	58.0	1.07	11,050	44.0	360	0.76
			3	NaOCl	0.6	5.0	35	60	85.0	79.0	57.0	0.4	20.1	60	525	73.2	1.39	53.6	1.04	10,600	40.5	420	0.80
														100	320	79.4	1.48	43.2	0.81	13,630	46.5	618	0.89
														140	145	92.5	1.61	37.2	0.66	16,350	50.2	935	1.01
3992-4-6	Unbleached	...	..	.....	...	...	..	...	...	...	73.0	10.0	18.1	0	710	42.1	0.84	57.2	1.10	6,230	29.6	225	0.65
														30	515	58.3	1.15	40.8	0.81	10,590	39.8	406	0.81
3992-4-6	Bleached	616	1	Cl_2, then NaOH	15.0 14.0	2.0 2.0	23 24	20 70						0	640	79.1	1.45	72.4	1.29	11,240	44.2	942	0.79
														20	540	84.3	1.50	59.2	1.06	14,060	49.2	1,021	0.87
			2	$Ca(OCl)_2$	1.0	5.0	35	100	78.5	81.0	59.0	0.6	19.1	60	350	97.0	1.75	47.6	0.84	17,050	53.5	1,044	0.98
														100	195	87.1	1.62	36.8	0.69	16,160	48.1	1,570	1.06
5115	Unbleached	...	..	.....	...	...	..	...	57.0	...	72.0	10.4	17.9	0	815	26.1	0.45	51.2	0.91	3,200	18.1	12	0.53
														60	510	61.7	1.12	32.4	0.59	8,980	35.8	114	0.76
														100	260	70.1	1.24	27.2	0.48	12,640	40.8	263	0.94
5115	Bleached	924	1	Cl_2	15.0	2.5	25	120						0	780	46.9	0.86	64.4	1.18	6,750	30.1	235	0.68
			2	NaOH	2.0	10.0	60	60						20	640	61.9	1.15	58.4	1.09	10,300	40.1	456	0.78
			3	NaOCl	0.5	10.0	39	180	82.0	82.0	59.0	0.0	19.9	40	480	73.0	1.34	50.0	0.92	12,120	42.7	744	0.86
														80	210	84.4	1.55	37.2	0.69	15,520	49.5	1,166	0.95
5108-9-10	Unbleached	...	..	.....	...	...	..	...	48.3	...	76.0	10.6	18.6	0	800	29.4	0.52	51.2	0.94	3,070	16.9	16	0.55
														45	550	50.0	0.93	45.9	0.86	8,230	32.1	161	0.78
														100	235	65.1	1.17	30.0	0.55	12,000	38.8	329	0.94
5108-9-10	Bleached	992	1	Cl_2	16.0	3.5	17	90						0	735	41.9	0.80	59.4	1.15	5,110	25.0	138	0.70
			2	NaOH	2.0	9.0	46	60						20	640	50.9	0.96	56.4	1.08	7,520	30.4	279	0.75
			3	$Ca(OCl)_2$	2.2	10.5	33	270	85.0	81.5	62.0	0.0	...	40	545	62.7	1.19	49.2	0.95	8,620	32.4	284	0.81
														80	310	69.2	1.34	36.0	0.69	12,840	41.7	585	0.94
									Aspen[4] Kraft Semichemical														
2718	Unbleached	...	..	.....	...	...	..	...	13.4	...	76.0	17.3	14.3	0	720	22.7	0.43	44.4	0.85	2,980	15.8	11	0.38
														60	520	37.5	0.73	42.8	0.84	6,550	26.3	67	0.51
														100	375	40.2	0.79	34.0	0.67	7,380	28.4	111	0.53
2718	Bleached	844	1	Cl_2	26.0	2.0	25	74						0	700	51.0	0.89	63.2	1.11	6,840	27.4	167	0.76
			2	NaOH	2.0	10.0	60	60						40	560	61.5	1.12	51.6	0.93	9,260	32.7	491	0.86
			3	NaOCl	2.5	5.0	35	195	80.0	74.0	56.0	0.0	15.7	100	330	69.0	1.21	36.4	0.64	11,650	36.0	758	0.98
														160	185	71.3	1.24	28.0	0.49	13,190	37.2	700	1.08
									Commercial Softwood Mitscherlich Sulphite														
P-1765	Bleached	...	..	.....	...	...	..	...	72.0	...	...	...	...	0	860	44.8	0.84	74.8	1.46	5,240	23.8	413	0.67
														20	720	57.4	1.16	49.6	0.97	9,800	36.9	683	0.81
														40	520	55.7	1.16	36.0	0.72	11,100	36.2	466	0.94
														60	365	58.4	1.17	31.6	0.63	11,800	37.8	790	0.96
														100	175	58.4	1.22	25.6	0.51	14,200	42.3	833	0.99

[1] Percentage values are based on weight of pulp on the moisture-free basis. Percentage values given for hypochlorite refer to th eamount of available chlorine applied as hypochlorite. In all hypochlorite stages sufficient alkalinity was maintained so that the end pH value was not less than 8.0.

[2] Measured with a Hunter reflectometer calibrated according to TAPPI Standard T217 sm-42.

[3] Beater test according to TAPPI Standard T200 m-43. Ream size 25 × 40 — 500. Ream weight of test sheets conditioned at 50% relative humidity and 75° F. ranged from 50 to 60 pounds. Tensile strength values in pounds per inch width have been adjusted to a ream weight of 55 pounds, 25 × 40 — 500.

[4] *Populus tremuloides.*

hypochlorites were not equally effective on all pulps but, in general, 10% chlorine as hypochlorite at a sufficiently high alkalinity gave a somewhat higher brightness than 2 to 3% peroxide. With respect to hue, however, the pulps bleached with hypochlorite were definitely more yellow than those bleached with sodium peroxide. In a limited number of coloring tests, this yellow hue was masked without loss of brightness.

Brightness stability was better with sodium peroxide than with hypochlorite when the bleached pulps were shielded from light in storage. The decrease in the brightness of test sheets of the peroxide-bleached pulps after 60 days did not exceed 2.5 points and in most instances was less than 1 percentage point whereas the brightness of test sheets of the hypochlorite-bleached pulps decreased 1.5 to 5 percentage points. However, even after storage the latter were still equal or higher in brightness than were the peroxide-bleached pulps.

Effect of One-stage Bleaching on Yield

The high yield of bleached pulps obtained with the one-stage hypochlorite and sodium peroxide treatments of the semichemical pulps is an attractive feature of these processes. As shown in Table I, the yields of pulps bleached with sodium peroxide ranged from 96 to 99% of the unbleached pulp or 69 to 79% of the moisture-free wood and when bleached with hypochlorites, from 92 to 98% of the unbleached pulp or 66 to 79% of the wood for the pulps reported in here.

As might be expected with yields in this range, the amount of lignin removed by the bleaching was comparatively small. The amounts removed by sodium peroxide and the hypochlorites ranged, respectively, from 1 to 5% and from 18 to 40% of the lignin content of the unbleached pulp.

Effect of One-stage Bleaching on Pulp Strength

In general, the one-stage bleaching treatments increased pulp strength slightly, folding endurance being affected to a greater degree than the other strength properties as is shown by the results in Table II. The strengths of the pulps after bleaching with either the sodium peroxide or the hypochlorites were essentially the same.

Exceptions to strength increase upon bleaching occurred with the aspen and paper birch pulps when bleached with calcium hypochlorite (bleaches 34 and 36). With these, the bursting and tensile strengths were decreased somewhat but the folding strength was increased and the tearing strength was essentially unaffected.

Possibilities of One-stage Bleaching

On the basis of present information, it is believed that one-stage bleaching can be used for processing semichemical pulps in very high yield to a condition satisfactory for certain grades of paper. They can be produced with strengths and freenesses much higher than those of groundwood pulps made from the same species yet in yields only slightly lower. Thus they offer a possibility for the advantageous use of a species in cases where these properties are more desirable than the bulk, and opacity imparted by the groundwood pulp.

Multistage Chlorination-Hypochlorite Bleaching

The character of bleached semichemical pulps prepared by the conventional multistage chlorination-hypochlorite process is markedly different than those prepared by treatment in one stage with hypochlorites or sodium peroxide. If desired, they may be brought to a brilliant white but at any point in the bleached brightness range they are much stronger than the pulps bleached in one stage. It follows, of course, that they are also much stronger than the corresponding unbleached pulps.

This trend of strength increase is understandable when it is recalled that the lignin content of unbleached semichemical pulps is high, at least 10%, as compared with conventional pulps for bleaching, and that chlorination bleaching selectively removes much or all of the lignin with, in the case of hardwood pulps, but little attendant loss of pentosans.

To take full advantage of the selective action of elemental chlorine when bleaching semichemical pulps by the chlorination process, the practice thus far has been, in general, to apply sufficient chlorine in the first stage so that not more than 2% chlorine as hypochlorite would be required in subsequent stages. An alkaline extraction stage after chlorination has been used whenever advantageous to maintain this chlorine partition or for other purposes such as action on shives or dirt or for possible strength improvement.

Data are given in Tables III and IV on the chemical requirements in the multistage bleaching of semichemical pulps and the yield and strength development characteristics of the bleached pulps. Table III is concerned with aspen pulps and included therewith are comparative strength data for a commercial bleached softwood, Mitscherlich sulphite pulp of high quality for glassine paper. In Table IV, similar data are given for neutral sulphite semichemical pulps from several species other than aspen.

Multistage Bleaching of Aspen Pulps

The aspen neutral sulphite semichemical pulp identified in Table III as P-2266 was one of those made in the mill trials of bleached semichemical pulp in book paper *(13)*. Although a bleached pulp brightness of over 75 was not required in this instance, an increase in pulp strength was considered essential, thus necessitating a chlorination-hypochlorite bleaching treatment.

Among the bleaches made on this pulp, Nos. 834, 837-8, and 836 are given in Table III to show the influence of an alkaline extraction stage. A comparison of bleach 837-8, in which a 1% caustic extraction stage was used, with bleach 834 in which no extraction stage was used indicates the use of an extraction stage may reduce the total chlorine requirement for a given brightness as much as 23% and the chlorine requirement as hypochlorite up to 50%. In general, however, when a conventional extraction stage is used the yield of bleached pulp may be 2 percentage points lower than when it is omitted. In bleach 836 the amount of caustic in the extraction stage was increased to 10% for an extreme condition primarily to observe the effect on pulp strength. This more drastic extraction further decreased the chlorine requirement and yield.

With respect to yield, the indications were that about 60% of bleached pulp based on the wood should be realized with a multistage treatment and this was confirmed in the mill trial.

With respect to strength, it is indicated that an extraction treatment following chlorination may improve tearing strength sufficiently to be of importance

TABLE IV.—EFFECT OF MULTISTAGE CHLORINATION-HYPOCHLORITE BLEACHING ON NEUTRAL SULPHITE SEMICHEMICAL PULPS FROM SEVERAL WOODS

			Bleaching Conditions [1]						Yield				Strength Development [2]									
														Freeness (Schopper-Riegler)	Burst		Tear		Tensile			
Pulp No.	Condition of Pulp	Bleach No.	Stage No.	Agent	Amount, %	Consistence, %	Temperature, ° C.	Duration, min.	Brightness, [3] %	Basis Unbleached Pulp, %	Basis Wood, %	Lignin, %	Total Pentosans, %	Beating Time, min.	ml.	pts.	pts. per lb. per ream	gm.	gm. per lb. per ream	lb. per sq. in.	lb. per in. width	Number of Double Folds	Density gm. per cc.
Black Tupelo (*Nyssa silvatica* M.)																						
5141	Unbleached	...	..	.....	...	...	..	...	54.6	...	80.0	18.5	15.1	0	850	13.3	0.25	52.8	1.00	954	7.7	1	0.38
														30	740	22.5	0.44	61.6	1.21	2,250	14.5	14	0.47
														50	505	30.1	0.58	58.4	1.14	3,680	20.5	62	0.55
5141	Bleached	923	1	Cl_2	22.0	2.5	25	120						0	655	59.3	1.06	90.4	1.61	6,280	30.6	525	0.62
			2	NaOH	2.0	10.0	60	60						20	345	63.5	1.15	58.0	1.05	10,000	37.4	654	0.81
			3	NaOCl	1.9	10.0	38	265	82.0	68.0	54.4	...	...	40	170	65.5	1.21	46.0	0.85	13,170	43.5	1,230	0.92
Yellow-Poplar (*Liriodendron tulipifera* L.)																						
5137	Unbleached	...	..	.....	...	...	..	...	44.7	...	79.0	14.3	15.5	0	775	21.5	0.38	73.2	1.29	2,580	16.0	13	0.49
														40	525	36.3	0.66	60.8	1.11	5,520	23.8	92	0.70
														60	370	40.5	0.73	46.4	0.84	6,820	27.5	130	0.75
														100	180	48.8	0.88	37.2	0.69	9,400	32.0	104	0.90
5137	Bleached	922	1	Cl_2	18.0	...	25	120						0	645	66.7	1.13	78.0	1.34	7,460	32.5	386	0.69
			2	NaOH	2.0	10.0	60	60						20	475	74.5	1.30	57.2	1.03	11,140	39.1	830	0.86
			3	NaOCl	1.7	10.0	38	420	81.7	71.0	56.0	0.85	18.8	40	325	77.3	1.35	48.0	0.86	13,860	45.7	1,198	0.93
														60	205	82.0	1.40	39.2	0.68	14,600	45.1	1,757	0.98
Paper Birch (*Betula papyrifera*)																						
5151	Unbleached	...	..	.....	...	...	..	...	49.3	...	75.2	12.7	22.7	0	400	52.1	0.93	44.4	0.80	8,120	32.5	227	0.76
														20	225	62.3	1.10	38.4	0.68	10,700	37.9	266	0.86
														60	90	65.8	1.16	29.6	0.53	11,500	37.7	221	0.93
5151	Bleached	850	1	Cl_2	16.0	2.0	26	90						0	420	67.1	1.18	51.2	0.91	10,210	38.5	691	0.82
			2	NaOH	2.0	10.0	56	60						40	230	77.2	1.40	40.4	0.74	14,680	46.7	751	0.96
			3	$Ca(OCl)_2$	1.6	10.0	36	360	78.5	74.4	56.0	1.4	28.9	80	115	75.7	1.39	32.8	0.60	14,500	44.8	910	0.98
Silver Maple (*Acer saccharinum*), American Beech (*Fagus grandifolia*), and Black Cherry (*Prunus serotina*), (Equal Parts)																						
5150	Unbleached	...	..	.....	...	...	..	...	35.7	...	74.8	11.5	19.5	0	660	29.3	0.54	50.4	0.93	4,130	20.1	28	0.62
														10	595	33.9	0.60	52.4	0.93	4,710	21.3	69	0.67
														20	530	40.1	0.69	49.6	0.86	5,110	21.8	113	0.71
5150	Bleached	965	1	Cl_2	13.0	2.6	21	75						0	550	56.0	0.94	73.2	1.25	6,360	28.3	290	0.68
			2	NaOH	2.5	13.3	43	60						40	345	65.8	1.17	57.2	1.03	9,240	35.2	767	0.80
			3	$Ca(OCl)_2$	1.1	12.0	35	180	75.1	83.0	62.0	1.0	...	80	195	74.1	1.34	46.8	0.85	13,400	45.5	1,079	0.89
Sweetgum (*Liquidambar styraciflua* L.)																						
3905	Unbleached	...	..	.....	...	...	..	...	...	...	79.2	14.0	..	0	820	15.6	0.27	75.2	1.29	1,724	12.0	8	0.43
														20	610	29.7	0.52	74.8	1.30	4,080	20.4	34	0.61
														40	390	40.2	0.70	59.6	1.04	5,120	22.0	73	0.72
														80	195	43.6	0.76	40.0	0.70	7,290	27.0	63	0.83
3905	Bleached	552	1	Cl_2, then NaOH	28.5 28.0	3.0	25	...						0	680	53.3	0.93	105.6	1.83	6,600	29.4	396	0.69
														20	500	61.5	1.12	72.4	1.30	9,520	36.9	661	0.79
			2	NaOH	1.0	3.0	70	45						50	270	72.3	1.28	55.6	1.00	12,350	40.6	1,415	0.93
			3	$Ca(OCl)_2$	0.7	3.0	40	120	81.0	72.0	57.0	...	...	70	155	72.2	1.30	43.2	0.78	14,200	43.9	1,653	1.01
Shortleaf Pine (*Pinus echinata*)																						
2532	Unbleached	...	..	.....	...	...	..	...	26.5	...	70.0	11.2	9.6	0	890	20.5	0.34	137.2	2.29	1,460	11.9	13	0.37
														40	780	55.2	0.91	100.8	1.71	4,780	26.6	352	0.55
														60	500	61.1	1.04	79.2	1.36	6,200	30.1	419	0.63
														105	155	64.5	1.11	40.0	0.69	11,175	39.7	503	0.86
2532	Bleached	558	1	Cl_2, then NaOH	29.0	3.0	25	90						0	890	31.7	0.52	206.8	3.44	2,300	12.8	44	0.55
														20	805	66.7	1.20	124.4	2.15	6,200	29.3	937	0.64
			2	NaOH	1.5	3.0	72	180						30	680	73.7	1.26	90.8	1.76	6,500	27.8	992	0.72
			3	$Ca(OCl)_2$	1.0	3.0	42	60	80.0	...	...	0.0	10.2	60	275	77.8	1.47	56.8	1.12	10,300	38.8	965	0.81

[1] Percentage values are based on weight of pulp on the moisture-free basis. Percentage values given for hypochlorite refer to the amount of available chlorine applied as hypochlorite. In all hypochlorite stages sufficient alkalinity was maintained so that the end pH value was not less than 8.0.

[2] Measured with a Hunter reflectometer calibrated according to TAPPI Standard T217 sm-42.

[3] Beater test according to TAPPI Standard T200 m-43. Ream size 25 × 40 — 500. Ream weight of test sheets conditioned at 50% relative humidity and 75° F. ranged from 50 to 60 pounds. Tensile strength values in pounds per inch width have been adjusted to a ream weight of 55 pounds, 25 × 40 — 500.

especially in connection with use in the manufacture of greaseproof and glassine papers. Results from a turpentine penetration test made according to Army-Navy Specification JAN-P-121, which specifies the use of a creased specimen, showed that the extraction treatment did not decrease rate of delevelopment of greaseproofness nor its degree.

Pulp 3992-4-6 was used in connection with a mill trial run of glassine paper *(7)*. Bleach 616, one of a number made on this pulp, comprised a pseudo two-stage treatment in that after the chlorine was injected in the first stage, caustic was added to adjust the pH value to about 8.5. After the reaction was completed under this condition the pulp was washed and treated in a second stage with calcium hypochlorite. The folding strength of the bleached pulp is especially noteworthy. In this instance also a yield of bleached pulp of approximately 60% based on the wood was indicated and confirmed in the mill trial. The first stage chlorine-caustic sequence used in this bleach will be readily recognized as that devised by Rue for use with conventional pulps. However, it is not economical for semichemical pulps because of the large amount of hydrochloric acid formed in the chlorination stage.

In connection with the development of the greaseproof quality of bleached hardwood neutral sulphite semichemical pulps by beating, it has been observed that when the density of air-dry test sheets pressed wet at 50 p.s.i. reaches the range of 0.9 to 0.95 gram per cc. greaseproofness as measured by the turpentine test is very high, usually 1,800 seconds or more.

Pulp 5115 represents a very high freeness semichemical pulp and consequently the percentage of shives was high. However, as bleached with a total of 15.5% chlorine in conjunction with a 2% caustic extraction stage (bleach 924), a brightness of 82 was attained and the yield was 59% based on the wood. After bleaching, the shives responded readily to mechanical processing and it appeared that they would not have been objectionable for use in either book or glassine papers.

The higher strength attainable with a multistage process than with a one-stage process is illustrated by comparing the bleached pulp under discussion (924) with that of the pulps from bleaches 33, 34, and 35 of Table II since the same unbleached pulp was used in all. Using the average strength of Nos. 33 and 34, the strongest of the three, it is observed that the strength of the pulp bleached by the multistage process was higher in burst by 25%, in tear by 21%, in tensile by 30%, and in folds by 50%.

Pulp 5108-9-10 was also a high freeness pulp, and of somewhat higher yield than the aspen pulps discussed above. Consequently, as shown by bleach 992, its chlorine requirement was somewhat higher. Nevertheless, the higher yield of unbleached pulp was realized to a degree in a higher yield of bleached pulp, the yield being 62% based on the wood when bleached to a brightness of 85. In other instances, not shown in the tables, unbleached aspen pulps of 76 to 77% yield have dropped only to 62% yield based on the wood when fully bleached. If bleached to a lower brightness, 75 for example, a yield as high as 66% has been obtained.

Pulp 2718 was a kraft semichemical prepared from aspen. This pulp, of 76% yield based on the wood, contained about 17.3% lignin as compared with the 10.6% lignin content of the neutral sulphite semichemical pulp of 76% yield just discussed. Bleach 844, made on the kraft pulp, showed a total chlorine requirement of 28.5% in conjunction with a 2% caustic extraction stage for a brightness of 80. The yield of bleached pulp was 56% based on the wood which is low compared to those obtained with the neutral sulphite semichemical pulps, though the strength of the bleached pulp was in the same range. It is apparent the neutral sulphite types are more suitable for bleaching than the kraft types of semichemical pulps.

The strength quality of the bleached hardwood neutral sulphite semichemical pulps can be judged against the strength data for the commercial bleached softwood Mitscherlich sulphite pulp (P-1765) shown in Table III. This comparison shows that bleached aspen semichemical pulps can be equal to or superior in strength to some long-fibered fully cooked sulphite pulps.

Multistage Bleaching of Other Hardwood and Shortleaf Pine Pulps

Multistage bleaching results for neutral sulphite semichemical pulps from several hardwoods, other than aspen, and also from shortleaf pine are given in Table IV. The pulps in this group were both in and above the yield range and higher in lignin than the aspen pulps described in Table III. Therefore, the chlorine requirement for fully bleaching these pulps was higher than that for the aspen pulps. However, upon consideration of the yield and lignin content, the chlorine-lignin ratios, and the variation in the chlorine requirement of pulps at the same yield from different samples of wood of the same species, it appears that neutral sulphite semichemical pulps of the same unbleached yield and lignin content produced from the hardwoods so far studied, with possibly the exception of sweetgum, will have fairly similar chlorine requirements when bleached by a multistage process.

With respect to the yield of bleached pulp the indications are that somewhat lower yields of fully bleached pulps will be obtained from yellow-poplar, black tupelo, paper birch, and sweetgum than from the other hardwoods shown.

As was observed in the case of aspen, the strength of the bleached pulps prepared from these hardwoods by the mutlistage process was much higher than that of the corresponding unbleached pulps.

Though the strength of all the bleached hardwood pulps in this group is high, attention is called to the tearing strength of the black tupelo, yellow-poplar, and sweetgum pulps, particularly in comparison with that of the commercial bleached softwood Mitscherlich sulphite pulp given in Table III. At a freeness of about 550 ml. Schopper-Riegler, the average tearing strength of these three pulps was about 80% higher than that of the softwood pulp. All of the hardwood bleached pulps had excellent folding strength, but that of the yellow-poplar and sweetgum pulps is especially noteworthy.

Illustrations of the strength advantage of pulps bleached by a multistage process over those bleached by a one-stage process are provided by comparing (1) the black tupelo pulp from multistage bleach 923, Table IV, with those from the one-stage bleaches 1 and 2, Table II, and (2) the yellow-poplar pulp from multistage bleach 922, Table IV, with those from the one-stage bleaches 9 and 12, Table II. For the unbeaten pulps, the values for the individual strength properties of the multistage bleached pulps ranged from 1 to 175 times higher than those of the one-stage bleached pulps.

Both the yield of the unbleached pulp and the lignin

content of the shortleaf pine neutral sulphite semichemical pulp were low compared to most of the hardwood pulps. In view of these facts its chlorine requirement of 30% for a brightness of 80 was disproportionately high and unfavorable for use as bleached pulp. As with the hardwood pulps, strength was increased by the bleaching. However, it is doubtful that bleached softwood semichemical pulps will generally show the high strength superiority to bleached conventional softwood pulps observed in the similar comparison of bleached hardwood semichemical pulps.

Conclusions

The bleaching of semichemical pulps by one-stage and multistage methods presents no serious technical difficulties. Although the bleaching of this type of pulp appears promising because of the high yields and quality of bleached pulp obtainable, the economic feasibility of using bleached semichemical pulp can be determined only by consideration of all factors involved in individual cases. Such factors are the relationships of wood and pulping costs, cost of bleaching chemicals, yields of bleached pulps, and the distinctive characteristics of this type of pulp compared to conventional pulps.

The character and yields of the bleached pulps prepared by one-stage and multistage methods are quite different. Consequently, the use requirements of the bleached pulp will govern the selection of the bleaching method.

With a one-stage treatment the maximum practicable brightness obtainable appears to be about 75. Although, at the most, only a small increase in pulp strength by one-stage bleaching can be expected, it should be recognized that the strength of unbleached hardwood neutral sulphite semichemical pulp is high compared with that of conventional hardwood pulps. Calcium and sodium hypochlorites and sodium peroxide are, in general, satisfactory for use in a one-stage treatment, but each has limitations. Consequently, a laboratory-scale comparison of the three may be advisable before making a selection of the method for a specific bleaching job. The indicated range of the yield of bleached pulps based on the unbleached was 92 to 99% for 10% chlorine as hypochlorite and for 2 to 3% of sodium peroxide. Generally, a lower yield is to be expected with the hypochlorites than with sodium peroxide which is accounted for, at least in part, by the fact that the hypochlorites remove more lignin than does sodium peroxide.

By use of a multistage chlorination-hypochlorite bleaching treatment, fully bleached semichemical pulps much stronger than the corresponding unbleached pulps can be prepared in yields ranging from 55 to 65%, and possibly higher in the low brightness range, based on the wood. The yield based on the unbleached pulp will range down to 80%. The results of mill trials indicate that a yield of bleached pulp of about 60% based on the wood can be obtained in commecial operation. For unbleached pulps in yields of 70 to 76% based on the wood and containing from 10 to 12% lignin, the total chlorine requirement is about 13 to 20% based on the unbleached pulp on the moisture-free basis.

An important characteristic of the bleached pulps prepared by the multistage process is a high rate of development of strength and also of greaseproof quality.

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Watertown TAPPI Hears Tucker

The Watertown Group of the TAPPI Empire State Section met at Pine Lodge, Black River, N. Y., on January 9th. E. C. Tucker of the Stebbins Engineering & Mfg. Company, Watertown, N. Y., was the principal speaker. His topic was "Anti-Corrosive Linings in the Scandinavian Countries."

Mr. Tucker stated in part:

1. Stainless steel linings and stainless steel in general seemed to be used much more commonly in the United States. The reason for this being that due to their type of economy, stainless steel is proportionately more reasonable than other linings.

2. No rubber or synthetic lined pipes or vats are found. They are all made of stainless steel.

3. Tile is confined to one or two grades. Tile is used mostly in bleach plants and for shower rooms. This tile has a very high grade and is very expensive.

4. Digester linings are only 3" thick which is much thinner than ours. The digesters have no inside straps. The majority of digesters are insulated. The reason that this works out successfully is that they cook so much more slowly than we do. Their average cooking time is 30 hours. The average lining will produce only one-half the tons of pulp that ours do.

5. Hollow tile does not appear there at all.

6. Their labor costs are approximately equal to ours which is one reason their pulp costs are so high.

7. The cements which they use for setting tile have much less strength than ours because practically all the cement used is mostly sodium silicate base.

Those present included:—W. Forbes, Harold Peck, George Duers, C. S. Booth, J. P. Ormsby, R. J. Hackett, A. Alcombrack, E. A. Mahannah, E. A. Godfrey, F. Durkee, A. Hartman, M. Wright, M. Meyers, W. P. Barnard, W. Dempsey, M. H. Bennett, E. F. Tucker, C. F. Richter, P. Thomas, O. Munger, Nelson C. Hansen, Henry Teal, W. J. Argy, Will J. Lessard, F. C. Goodwill, H. Mellen, C. J. Slack, Thomas Gerace, S. J. Young, Martin Jaffe, D. C. Mather, Hells Clark, Robert Magruder, H. A. Spencer, R. A. Schwartz, W. B. Mills, Will Forbes, J. V. Wolff, W. Arsenault, Don Crainer, Dexter B. Williams, Carlos Stafford, Newt. Hagar, Don Hunter, Karl Pingrey, and Harold Remington.

Pacific Tappi Meets at Longview, Washington

Pacific Section TAPPI met at Longview, Washington on Jan. 14, 1947. Following the plan adopted by Pacific Section sometime ago, the technical meeting was convened at 2:00 P.M. at the Longview Women's Club by Chairman G. H. Gallaway. The program for the day was planned under the direction of the Vice-Chairman of the Section, Dr. J. L. McCarthy, Dept. of Chemistry and Chemical Engineering, University of Washington and his program committee, H. C. Wall, Longview Fibre Co., Longview; E. O. Ericsson, Puget Sound Pulp & Timber Co., Bellingham, Wash.; and R. I. Thieme, Soundview Pulp Co., Everett, Wash. Approximately 150 attended the afternoon technical meeting and the reception and dinner at the Hotel Monticello. The program for the day follows.

1. *Shibley Award Paper.* The second paper entered in the annual Shibley Award Contest for 1946-47 was presented by Paul E. Barr, Rayonier Inc., Hoquiam, Wash. In his paper entitled "Experiences with Sodium Aluminate in Paper Making" Mr. Barr discussed the work done at the Hoquiam plant in improving the rosin sizing and aging qualities of high grade sulphite papers by first decreasing the amount of alum used per ton of paper and substituting sodium aluminate for a portion of the alum used. He outlined in detail the methods used in arriving at an optimum amount of alum and sodium aluminate to give the desired results in sizing, pH and permanence characteristics of the sheet. A discussion period followed in which Mr. Barr commented on several questions from the floor.

The remainder of the afternoon meeting was given over to a discussion of "Kraft Bleaching" under the direction of R. S. Hatch, Director of Research, Weyerhaeuser Timber Co., Pulp Division, as moderator. Mr. Hatch opened the subject by outlining the phases of the problem to be discussed by his panel and then introduced Dr. J. L. McCarthy, Dept. of Chemistry and Chemical Engineering, University of Washington. Dr. McCarthy discussed the work done at McGill University on the chlorination and oxidation of isolated lignin wherein the chlorine consumption was determined and the reaction products studied. He showed by numerous graphs the several reaction products studied. He showed by numerous graphs the several reactions which take place during the chlorination and hypochlorite bleaching process and discussed the importance of time, temperature and concentration of chemicals on the final results. Dr. McCarthy's paper provided an excellent theoretical background for the two papers which followed by Paul S. Billington, Research Dept., Weyerhaeuser Timber Co., Pulp Division and Dr. W. F. Holzer, Central Technical Dept., Crown Zellerbach Corp.

Mr. Billington discussed the sequence of the bleaching operations as practised in this country and in the Scandinavian operations. He then gave detailed data on the three common methods of chlorination, caustic extraction and hypochlorite bleaching which have been accepted as the best practice by the pulp industry in the United States. Mr. Billington's paper produced considerable discussion on several points on which both he and Mr. Hatch commented in detail.

Dr. Holzer's paper on "Bleaching Agents Other than Chlorine and Hypochlorite" discussed the possible use of various other bleaching chemicals which might be used for the production of extremely high brightness Kraft pulps. He outlined the procedure for the preparation and use of the various peroxides, chlorites and chlorates and explained the economics of such operations which because of higher costs would necessarily limit their use to special grades of pulp where maximum brightness and minimum degradation were important.

The technical meeting adjourned at 5:00 P.M. The group was entertained at a social hour at 5:30 P.M. through the courtesy of the Longview Fibre Co. and the Weyerhaeuser Timber Co. Pulp Division of Longview.

At the dinner which followed at the Hotel Monticello, Chairman Gallaway introduced Howard W. Morgan, Manager Pulp Division, Weyerhaeuser Timber Co. Mr. Morgan spoke briefly of his interest in Pacific Section activities.

During the remainder of the evening, movies were shown. "Yellow Magic" a story on sulphur courtesy of the Freeport Sulphur Co. and Trees for Tomorrow and also The Sport Parade of 1946 were enjoyed by those present. The meeting adjourned at 9:30 P.M.

Pacific Section meets next at Bellingham, Washington on March 11, 1947. A program on Mill Instrumentation is being organized under the direction of H. T. Peterson, Weyerhaeuser Timber Co., Pulp Division, Longview, Wash.

Hudson River TAPPI Hears E. C. Jahn

The Hudson River Group of the TAPPI Empire State Section met at the Queensbury Hotel, Glens Falls, N. Y. at 7 p.m. Friday January 17th. About 60 attended.

R. I. Wynne-Roberts of the Finch, Pruyn Company presided as outgoing chairman and conducted the election of officers. Henry W. Fales of the Marinette Paper Company, Glens Falls N. Y. was elected chairman of the Group for the following year. Mr. Fales thereby became vice chairman of the Empire State Section. James E. Foote, of the B-F-D Company, Plattsburg, N. Y. was appointed chairman of the speakers committee; Foster P. Doane of the Sandy Hill Iron & Brass Works, Hudson Falls, N. Y., chairman of the dinner committee; Larry Ross of the Union Bag & Paper Company, Hudson Falls, N. Y., chairman of the attendance committee; A. B. Copping of the International Paper Company, Palmer, N. Y., chairman of the publicity committee.

John Campbell, consulting engineer, Niagara Falls, N. Y., and chairman of the TAPPI Empire State Section, was introduced by Mr. Fales. Dr. Campbell was present to assist in the reorganization of the Group under a new administration plan that provides for greater autonomy on the part of the Section regional Groups.

R. G. MacDonald, Secretary-Treasurer of the Technical Association of the Pulp and Paper Industry was present and reported on the progress made by the national association during the past year when more

than 550 new members joined the Association, a new record in Association growth. He paid a tribute to the large number of individuals in the association who are contributing their time and interest to the sections, committees and programs of TAPPI.

Mr. Macdonald introduced the speaker of the evening, Professor Edwin C. Jahn, of the New York State College of Forestry, Syracuse, N. Y., Dr. Jahn gave an extremely interesting account of his experiences in Sweden during the past few years as a technical adviser to the U. S. Department of State. Dr. Jahn's most recent studies dealt with the economic aspects of the Scandinavian industry.

Among other things D. Jahn pointed out that 71% of the land area of Sweden is covered with forests. The management of the mills is almost all technically trained men and effort is being focused on quality and cleanliness throughout the industry. The present bottleneck in the advance of the industry is the lack of adequate fuel supply. At the close of the war the physical assets of the industry provided for great flexibility relative to the pulp grades that can be made. Following his talk on technical developments Dr. Jahn showed a number of lantern slides of photographs that he took during his travels about Norway, Sweden, Denmark and Finland.

Lake States TAPPI Discusses Mill Sanitation

The Lake States Section of the Technical Association of the Pulp and Paper Industry met on Tuesday, January 14, 1947 at 6:30 p.m. at the American Legion Club House, Appleton, Wis. Over one hundred men registered for the dinner which was followed by a panel discussion on Mill Sanitation. Dr. John W. Appling, Research Associate, The Institute of Paper Chemistry, served as panel chairman.

Three speakers made up the panel of the evening. Paul B. Hansen, Assistant Superintendent, Bergstrom Paper Company, Neenah, Wisconsin, spoke on "Experiences on Slime Control in a Paper Mill." Dr. Hansen indicated that successful control with slime was obtained in the Bergstrom Mill by slug treatment with a combination composed of chlorinated phenol and an organic mercury compound split and added at various critical points in the system. The dosage averaged about 0.4 lb. per ton of finished paper at a cost of about 25 cents per ton. The importance of thoroughly cleaning out the systems before the initiation of a slime control treatment was stressed. In this case the system was flushed out with a very hot water solution of caustic, a detergent or dispersing agent, and a toxicant.

Joseph Atchison, Technical Director, John Strange Paper Company, Menasha, Wisconsin, spoke on "Slime Problems in the Board Mill." Dr. Atchison related the extreme difficulties caused by slime conditions in a board mill where up to 80% waste paper is used in the furnish and where the bacterial content of the pulp directly after the hydropulper may amount to as much as 500,000,000 colonies per gram. In this mill where the system is fairly open experiments with what were stated to be ridiculously large doses of chlorinated phenols and organic mercurials indicated that such control agents appeared to be ineffective. It was intimated that there was probably insufficient recirculation in the system to permit proper build up of the toxicants. However, the solution to the problem appeared to be the addition of chlorine to the system at the screens before the vats at the rate of about 1.5 lb. per ton. Dr. Atchison indicated that some mills use up to 3 lb. per ton and occasionall find that chlorine is effective when added at the fan pumps.

K. M. Winrich, Chief Chemist, Cornell Wood Products Company, Cornell, Wis., spoke on "Mill Problems Relating to Sanitation in Paper Products." Mr. Winrich outlined six points important in mill sanitation: 1. Streamlining the system; 2. Microbiological control and survey; 3. Raw material control; 4. Thorough wash up; 5. Good housekeeping in the mill, and 6. Proper scheduling of runs.

In connection with these points, streamlining the system was recommended to prevent splashing and to eliminate stagnant or dead spots. Mr. Winrich indicated that the plate count method was used to check all critical points in the system and as a control for all the raw materials. Chloramine was used to treat the raw water. The use of slime control agents by the split treatment method in proper doses was recommended. Mr. Winrich warned that some treatments may cause corrosion and erosion, for instance of machine wires. Flare-ups should be watched for during treatment. In addition, he suggested that it was important to check the water on sprays, inspect air jets, and also watch for slime on dams in water boxes.

Suitable good housekeeping and proper washing of the system was stressed as being particularly important. Raw materials, broke, and finished products should be stored in clean areas, handled in clean equipment, and also protected from rodents. At the Cornell Wood Products Company the system is washed up with hot water at about 180°F. containing chlorine and a detergent. Rapid circulation of the wash up water was recommended.

In connection with good housekeeping it was suggested that the cooperation of the safety director was often helpful in selling mill personnel on the idea of personal cleanness. It was recommended that floor sweepings be kept separate from clean broke and that floors be hosed according to a regular schedule.

Those present included: E. P. Adams, A. P. Adrian, J. W. Appling, E. P. Arpin, J. Atchison, L. R. Ayers, J. Baenen, J. W. Bard, R. A. Barnes, J. S. Barton, G. Beall, A. G. Beaman, R. C. Bledsoe, J. C. Bletzinger, J. R. Bowers, L. R. Bowers, G. Brabender, M. A. Buchanan, A. Byfield, E. D. Canaga, W. C. Christensen, G. L. Clearke, A. Coffin, H. C. Crandall, D. W. Davis, W. DeBreau, R. F. Delong, J. Dickson, H. P. Dixson, M. L. Downs, R. E. Driessen, T. L. Dunbar, R. T. Elias, G. F. Enderlein, W. A. Fannon, J. R. Fanselow, C. R. Faulkender, L. V. Forman, F. D. Frampton, W. J. Garding, G. A. Gease, J. P. Gerhauser, W. B. Giese, L. A. Gilbertson, E. Gummerus, J. A. Handeyside, F. Hanson, J. A. Hanson, H. Hartwig, A. M. Heald, M. Heath, T. M. Helf, R. W. Henschel, R. N. Hollands, T. A. Howells, E. C. Jacobi, A. Jankowski, P. E. Jones, W. S. Kennedy, A. R. Kjellgren, A. Klammer, F. X. Kreiling, O. Kress, J. J. Kryszak, G. T. Latham, A. Lewenstein, R. B. Lundy, A. J. Luth, D. M. MacLaurin, J. F. McCoy, N. L. Malcove, A. E. May, G. H. McGregor, L. A. McKeown, M. Meidam, J. Meyer, L. A. Moss, S. W. Murphy, J. J. Nylund, T. A. Pascoe, F. G. Pavlick, A. Phillips, F. J. Ratliff, N. Raymaker, D. Santmyers, S. Sawyer, L. Sebora, M. G. Schmitt, H. G. Shapiro, E. H. Shriver, L. E. Simerl, R. H. Siple, C. W. Steele, F. Swedish, R. Tourangeau, S. A. Trivedi, H. Vanderhei, W. Van Horn, W. Verhagen, E. H. Voigtman, H. L. Voss, I. Ward, L. Wellman, S. Wells, K. M. Winrich, E. W. Wreinke.